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ABSTRACT

A computer-based training (CBT) system was designed to train learners to recognize six styles of 18th century American antique chairs. The project consisted of five phases. The first phase consisted of a needs analysis to determine the training needs for the target population. Three groups of learners were identified: antique sales personnel, interior design students, and antique furniture hobbyists. The design phase determined, through completion of an instructional task analysis, the tasks to be learned. They included identification of chair anatomy, of variations on anatomy, and elements of style. Each task was followed by practice sessions. During the development phase, the Summit authoring system was used to create the American antique chairs CBT software. Formative evaluation was performed during this phase in one-on-one, small group, and pilot test settings. The CBT training was then implemented and a summative evaluation performed. Results indicated that learners using the CBT software were able to recognize and identify the six styles of 18th century American antique chairs. The project concluded with recommendations to improve this version of CBT systems as well as the next module, which would train learners to recognize 19th century chairs. Appendices include a target population questionnaire, project plan, task analysis sheet, antiques knowledge survey I and II, a CBT user guide sheet, storyboards, simulation exercises, CBT checklist, and evaluation data. (15 references) (Author/DB)

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THE SCHOOL OF MEDIA AND ARTS

of

NEW YORK INSTITUTE OF TECHNOLOGY

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in

TRAINING AND LEARNING TECHNOLOGY

A Computer-Based Training System for American Antique Chair Styles

Abstract

The computer-based training (CBT) system for American antique chairs trains learners to recognize six styles of 18th century American chairs. This project followed the Florida State or Interservice Model of Instructional Systems Design (ISD) which has five phases. The first phase was conducting needs analysis to determine the training need for the target population. Three groups of learners were identified by the target population analysis: antiques sales personnel, interior design students, and antique furniture hobbyists. It was followed by the design phase where instructional task analysis was conducted which specified the tasks to be learned. Three major tasks were specified: anatomy of the chair, variations on anatomy, and elements of style. Each task was followed by practice sessions. An additional session called design a chair was a synthesis of skills learned in the previous sessions. The CBT software and evaluation materials were then developed during the development phase. The Summit authoring system was used to create the American antique chairs software. Formative evaluation was performed during this phase. It had three stages: one-on-one, small group, and pilot test. Since the results of the formative evaluation were positive, the training was implemented via the CBT software. Summative evaluation was performed after the implementation phase. the results showed that learners could identify and describe the six styles of 18th century chairs. The project concluded with recommendations to improve this version of CBT system as well as the next module which would train learners to recognize 19th century chairs.

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A COMPUTER-BASED TRAINING SYSTEM FOR AMERICAN ANTIQUE CHAIR STYLES

by

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A Thesis/Project

submitted to The Faculty of the

School of Media and Arts

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of the requirements for the degree of

Master of Science

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CHAPTER 1

INTRODUCTION

Overview

Antiques, technically have to be at least one hundred years old. In the furniture category, chairs are one of the most widely used items. They are bought and sold most frequently by general antique stores as well as collectors and antique enthusiasts. Chairs are also most widely used in the interior decoration business due to their utility and variety of design.

The designer decided to focus on American antique chairs for this project since it was a very popular style on the market at the time of the project. Although 20th century chairs are widely dealt in the antique business, the designer selected 18th and 19th centuries for this project primarily due to the demand of target learners. Furthermore, since these chairs have their design history in British and continental furniture, learners will be able to apply their knowledge and skills to the European chairs as well.

There are many areas to focus on when learning about American antique chairs, such as how to tell the age of the chair, the wood it is made of, the period and the style of the chair, the history of the period and style, decorating with the chair in concert with other furniture and decoratives. It can take a long time to research about the chairs. For the purpose of this project, the styles will be focused as the training content, using the computer as the medium of instruction. By applying the computer-based training (CBT) system it can be carefully programmed to present only the necessary information and allow learners to interact with the information. A lot of noise can be deleted as it is not with most books and academic courses. The marriage of a CBT system and American antique chairs appears to be an interesting proposal.

Background

Knowledge of antiques or antique styles is best attained by "playing" with the items--looking, touching, and researching about them over a long period of time. Time is a major factor because different styles of an item, for example American antique chairs, do not appear regularly even to the learner who is in the antique business. Museums do house a vast array of styles; even then all American antique chair styles may not be under one roof. The student may have to research through a number of museums to learn about American antique chairs. There is also a vast number of books to study. Many of them tend to be scholarly or just do not pinpoint the various styles of American antique chairs.

The above learning constraints becomes greater for interior design students who want to learn about different American antique chair styles among other items in a semester and for sales personnel in an antique store who need to be trained about American antique chair styles in a short amount of time. Both groups of students need to see the different styles in a short time and therefore, the various styles of American antique chairs have to be gathered and presented under one roof and to learn about them in one sitting.

A well-researched computer program can gather a database of American antique chair styles and be presented as a CBT lesson to the interior design students and antique store sales personnel. Currently, there appears to be no comparable CBT for American antique chairs or any other forms of antiques, and thus the need for development.

Statement of the Problem

The problems for learning about American antique chairs styles arise in the forms of:

1. Requiring alot of time to research about American antique chairs
2. Inaccessibility of actual American antique chairs or faithful reproductions
3. Unavailability of all or most of the styles in one location
4. Lack of short-term courses that focus on American antique chairs.

Purpose of the Project

The purpose of this project is to train interior decoration students, antique sales personnel, and other interested antique chair students to describe and be able to identify seventeen styles of American antique chairs. The complete training course is composed of two modules. This project covers Module 1. It covers 18th century American antique chair styles. It is an instructional unit that trains students to recognize six styles of American antique chairs. Module II deals with eleven styles of 19th century chairs which is not included in this project.

Therefore, the purpose of this project is to present American antique chair styles so that the students learn about the basic concepts or features that distinguish one style from another. As a result, the students will be able to: describe the styles of American antique chairs and identify the style of an American antique chair when presented with one or when the features of a chair are described.

Definition of Terms

Authoring System - A higher level programming language in that a program is created using prompted options to create screen displays, questions, feedback, and branching (Alessi & Trollip, 1985).

Anatomy of the Chair - Parts of the chairs, such as the back, the seat, the legs, and their detailed parts.

Variations on Anatomy - Various types of back, seat, and legs.

Elements of Style - Various styles of chairs and the different features that distinguish one style from another.

Practice Session - Test based on the information presented on either anatomy, variations, or style.

Design a Chair - Test based on all previous information presented on anatomy, variations, and style.

Assumptions

1. That students are able to operate an IBM or compatible computer in terms of logging-on, logging-off, and use of basic keys such as enter, backspace, and the spacebar.

2. That students have access to IBM or compatible computer with monitor capable of displaying CGA graphics and one three and one-half inch floppy disk .

Limitations

1. That this project is limited to train students to recognize the styles of American antique chairs. It may not be suitable to train learners to recognize authentic antique as opposed to reproduction, nor about the materials used such as type of wood and upholstery.

2. That this module is limited to six styles of 18th century chairs. There are eleven more styles to learn in the next instructional module for 19th Century chairs.

3. That the styles covered in this project are limited to typical representations. There can be minor variations on a particular style depending on the creative touch of the chair-maker.

Method and Procedures

The method and procedures of this project follow the Joint Services Model of instructional systems design (ISD). It has five phases: analysis, design, development, implementation, and evaluation.

Analysis

The analysis phase is composed of conducting job task analysis, target population analysis, and finding out possible organizational constraints. Each of these activities gather information to determine the need for such a training program. The job task analysis selects job tasks for training. It describes the skills, knowledge, and attitudes needed for successful performance. The target population analysis collects relevant facts about the learners which include their present performance and what they desire to achieve from the training. The analyses will help determine the selection of media to deliver the training. By anticipating the organizational constraints, plans can be made to counter possible problems for the chosen instructional strategy. As a result of the analyses, instructional goals and a plan to design and develop the training are set. Review of existing literature, courses, and materials, as well as theories related to the project also helps plan and design the project.

Design

The information gathered during analysis phase is set systematically in measurable terms: it provides an observable step-by-step guide to perform the tasks. This process is called the instructional task analysis. It results in detailing instructional objectives and learning activities relating to each objective of the project. In this project, learners must be able to describe and identify six styles of American antique chairs at the end of the training session. It also identifies what the learners should know prior to training. A plan for assessing and evaluating the training is then designed in this phase.

Development

Instructional materials and resources are developed based on the details of learning objectives. The plan for developing learning activities and the actual process of developing the activities will be described in this section.

Since the analysis of the project decided on a CBT delivery, the Summit authoring system will be used to develop the CBT program to be operated on IBM compatible computers. Information for course content will be provided by the subject matter expert and the designer's research. Graphics required to present course information will be created by the designer. The products of development which include the user guide, the learning disk, and evaluation materials will be tested, reviewed, and revised throughout this phase.

Implementation

The revised lesson disks, the user guide sheets, and evaluation materials are produced in error-free, usable form. The details of instructional delivery will be recorded. In this project the training is self-administered by the learners. The evaluation materials are administered by the designer and data is collected for the summative evaluation process.

Evaluation

Formative and summative evaluation techniques are used to assess the effectiveness and efficiency of the training program. Formative evaluation consists of two one-on-one evaluation,s a small-group evaluation, and a field evaluation. The feedback from each of these stages is used to improve the CBT software and evaluation materials during the development phase. The summative evaluation process assesses reaction, learning, behavior, and results of the training program after the training.

Summary

This project is a CBT lesson to train learners recognize American antique chair styles. This chapter gives an overview and background of the project. The instructional problem and the purpose of the project are stated. The primary purpose of this project is to train learners to recognize sixe style of 18th century American antique chairs. The assumptions and limitations of the training program are also stated. The method and procedures of this project follow the ISD model. It consists of five phases: analysis, design, development, implementation, and evaluation. The process and activities involved in each phase are described.

CHAPTER 2

ANALYSIS

Introduction

This project began with the analysis phase in accordance with the ISD model. In this phase, a need analysis was first performed to identify valid training needs. It identified problems and if training would solve or improve the performance. There were three components to need analysis: job task analysis, target population analysis, and organizational constraints. The instructional goals of this project were derived and discussed based on the training needs. The designer researched literature, existing courses, and materials relating to this project. A plan to guide the design and development phases was also established.

Need Analysis

Need analysis assesses the need for training by finding out the discrepancy between present and desired performance. By gathering information about the tasks required to accomplish the desired performance, the profile of target learners, and organizational constraints on instructional strategy, the designer could determine the need and objectives of training.

The initial idea for training need came when the designer was working in an antique store. This need was discussed and supported by the antique store owner. Antique sales personnel joined the store with varying levels of knowledge and specialty. Based on the store's specialization, the owner would like to train the sales staff to recognize styles of furniture and decoratives and be able to answer customer inquiries regarding the styles. The traditional way of learning about furniture styles was to work in the business for a long time.

Part of the manner in which interior design students and hobbyists learn about antique furniture styles was through books and courses. It generally takes one semester to complete a course. Reading about them can also take a while before recognizing all the styles of a particular form of furniture.

Job Task Analysis

The designer identified three groups of learners for this project: antique store sales personnel, interior design students, and furniture design hobbyists. The designer analyzed the tasks each group was performing in their job or hobby. In the case of interior design students, the tasks they would perform when they become professional designers.

The designer conducted two separate interviews. First with the antique store owner and a sales personnel; and then with two interior design students and two furniture design enthusiasts. Three basic questions were asked in the course of the interview.

- What tasks they would or should be performing in their job or hobby?
- What kind of skills, knowledge, and attitudes are required to perform the tasks?
- How should the training be delivered?

The interviews showed that all three groups of target learners were or should be buying and selling antique chairs. The knowledge, skills, and attitudes which would enable learners to perform the tasks were identified. This served as the basis for writing the instructional goals and later in the design phase to conduct instructional task analysis.

Target Population Analysis

There were three groups of target learners in this project.

1. Antique sales personnel were full-time and part-time sales staff who worked in three different stores.
2. Interior design students were studying either full-time or part-time at Parsons School of Design or Fashion Institute of Technology.
3. Antique furniture hobbyists were those who claimed to have interest in antique furniture design, some of whom had been buying and selling furniture or planned to do so in the future.

They were all motivated to learn because the training they received would supplement their job, studies, or hobby. They were particularly interested in receiving the training in CBT form since it would be a new form of learning experience. All students were aware that they would be receiving training in chair style and that it was only one aspect of the antique chair information. All learners had access to a computer which could run the planned software. An example of the questionnaire used to collect data about the target population is in Appendix A. A profile of the target population appears in Table 1.

Table 1

Target Population Profile

		Sales Staff n=6 (24%)	Students n=9 (36%)	Hobbyists n=10 (40%)	Total n=25 (100%)
Native English-speaker	Yes	5	3	7	15 (52%)
	No	1	6	3	10 (48%)
Computer Use	Yes	6	9	10	25 (100%)
	No	0	0	0	0 (0%)
CBT Use	Yes	1	8	5	14 (56%)
	No	5	1	5	1 (44%)
Taken course on antiques	Yes	3	9	6	18 (72%)
	No	3	0	4	7 (28%)
Bought & sold antiques	Yes	6	1	6	13 (52%)
	No	0	8	4	12 (48%)
Plan to buy & sell antiques	Yes	6	9	9	24 (96%)
	No	0	1	1	2 (4%)

On the interest level scale to learn about American antique chairs, ten (forty percent) noted five, eight (thirty-two percent) noted four, and seven (twenty-eight percent) noted three. The scale ran from five through one, five being "very interested" and one being "not at all".

Organizational Constraints

Since the computer was selected as the medium to deliver the lesson, a suitable computer might not be available to the learner although all said that they had access to it. In such a case arrangements were made for the student to use the designer's portable computer.

Instructional Goal

The instructional goal is the knowledge, skill, or attitude expected to be achieved as the result of training or instruction. In this instructional unit, the goal is to enable learners to recognize American antique chairs by being able to:

1. Identify and name thirteen parts of the chair.
2. Identify and name ten types of backs, ten types of seats, and ten types of legs and feet.
3. Identify six styles of 18th century American antique chairs.
4. Describe six styles of 18th century American antique chairs.

The instructional goals for this project were derived from the needs assessment, specifically the interviews with members of target population. The outcome of questions asked in the job task analysis served as the criteria for establishing the goals. The analysis of instructional goals arrived at major topics to be included in the instruction. They were:

1. Anatomy of the Chair
2. Variations on Anatomy
3. Elements of Style

In addition, practice sessions for each topic and another session for learners to synthesize the information they had received were also planned.

The selection of training medium was also important to achieving instructional goals. The computer was selected as the medium to deliver the instruction. The designer consulted Anderson (1983), the subject matter expert, and some target learners to conduct a CBT feasibility study. The designer asked the following key questions to assess the feasibility.

1. Do learners have access and basic skills to operate the computer?
2. Is there a programmer who can use a CBT authoring system or authoring language?
3. Is there enough time to design and develop the CBT program?
4. Is the CBT implementation going to occur at different locations and be paced by learners themselves? Is there subject matter and technical support for learners?
5. Will the content be stable for more than two years?

Since the answers were all positive, the designer affirmed that CBT was the suitable choice. The advantages and disadvantages described by Anderson (1983) were also considered in relation to this project.

Literature, Existing Course, and Material Review

Related Theory

Dick and Carey (1985) classified instructional goals according to the domain of learning. In Gagne's (1985) scheme the tasks in this project fall under intellectual skill, cognitive strategy, and verbal information. In Bloom's (1956) taxonomy, it is a cognitive strategy. To identify a chair style, the learner must be able to discriminate between the styles. This process includes remembering and applying rules that make up the concept of a specific style. The rules are different features that make up the style. Part of the instruction also appears in verbal information domain. The learner must be able to recall and describe the chair styles using terminology of parts of the chair and names of different types of the parts.

The learning process used in this project has its roots in conceptual relations theories of cognitive psychology. Specifically, studies which showed how semantic memory is related to knowledge, skills, and attitudes. The CBT instruction in this project would rely on how features recognition technique assists in discriminating and recognizing different styles of chairs. The discussion of these theories can be found in Dodd and White (1980).

Literature Review

Sources that are related to the topic of this project were searched through computerized databases: NYIT TECH search and NYU BOBCAT searches were performed. The following were especially relevant to this project.

1. Butler, J. (1985). *Field guide to American antique furniture.* New York: A Roundtable Press Book.

It is a pictorial book with drawings of chairs, tables, cabinets, mirrors, and miscellaneous furniture. Each furniture depicted is accompanied by brief notes on the style and dates for the appearance of that style. The graphics are clean and simple.

2. Davidson, M. and Stillinger, E. (1985). *The American wing at the Metropolitan Museum of Art.* New York: Alfred A. Knopf, Inc.

An illustrated volume with important collection of seventeen of the famous American period rooms with authentic furniture, paintings, lamps, tableware, and other ornamental pieces. Especially relevant are four centuries of American chairs in the decor that it originally would have appeared.

3. Fairbanks, J. (1981). *American furniture, 1620 to the present.* New York: Richard Mark Publishers.

This book is a survey of American furniture illustrated with photographs. Commentary on the history and social systems of the time and how they influenced furniture styles are also included.

4. Miller, E. (1966). *American antique furniture, 1.* Baltimore, MD: The Lord Baltimore Press.

Volume one shows an extensive variety of individual period chairs. Each photograph of the chair is accompanied by a brief description about its important features in relation to regional flavor. Important facts about some furniture-makers are also noted.

5. Williams, H.L. and Williams, O.K. (1966). *Great houses of America.* New York: G.P. Putnam's Sons.

An illustrated book of thirty of America's most distinguished houses. The history, architecture, landscaping and gardens, interior decor and furnishings are described for each house with photographs.

Survey of Existing Courses and Materials

Survey of courses was conducted through university and college catalogues in New York City. The New York University Bulletin for 1989, Parsons School of Design Catalogue for 1989, and Fashion Institute of Technology Catalogue for 1989 offered the following introductory courses that covered aspects of furniture styles:

1. Introduction to Interior Design
2. Introduction to Antiques
3. Introduction to Decorative Arts.

According to the course descriptions, none of the courses specialized in antique furniture, although other courses at higher level covered furniture more in depth. All the courses would take one semester to complete.

For the purpose of this project survey of materials was focused upon CBT software. The designer surveyed art, design, and educational software listings to find out if there were any CBT software for teaching about antiques and furniture. None appeared. The sources of survey were:

1. *datapro directory of Microcomputer Software*, 2/1989
2. The New York Public Library Database
3. Trade catalogues which sold microcomputer software.

Plan for Design and Development Effort

With the information from analysis, the designer planned to proceed with the design and development of the CBT lesson. The plan paid attention to time and resources involved, including what would happen when the program is implemented.

Estimated Student Effort

On the average a learner is expected to take an hour and fifteen minutes to learn about American antique chairs via the computer. They will probably log-on to the computer to run the CBT software at least twice during one week. Although they can learn at their own pace, learners would have completed using all seven learning activities within a week. Therefore, the software will be loaned to them for a week. The evaluation activities, such as surveys, questionnaires, and simulation exercises would take forty-five minutes.

Project Plan

The plan to meet with target dates and to produce the deliverables is outlined in PERT and Gantt charts (Appendix B). The charts were used to monitor the progress of the project as well as to determine if revisions to the plan were necessary.

Budget

The full budget for this project is displayed in Table 2. The budget takes into account the five phases of ISD model. The expenses incurred are by the designer in all the phases except during the implementation. During the implementation phase, the cost is estimated for computer usage by the learners. The total project budget is estimated at $4,850.

Table 2

Project Budget

Expense	Hours	Per Hour	Cost	Subtotal	Total
Labor					
Analysis	20	$20	$ 400		
Design	30	$20	$ 600		
Development	80	$40	$3200		
Implementation (Computer Use)	15	$ 2	$ 30		
Evaluation	25	$20	$ 500		
Total Labor				$4730	
Materials					
Summit software			$ 100		
Paper, photocopy, & disks			$ 20		
Total Materials				$ 120	
Grand Total					$4850

Summary

In the analysis phase of the project, the need for this CBT program was examined with job task analysis, target population analysis, and analyzing organizational constraints. The analyses produced the instructional goal: that learners must be able to recognize 18th century American antique chair styles at the completion of the training. The training itself was to be delivered via the computer. A feasibility study for CBT approach was conducted and accepted by the designer and members of the target population who participated in the need analysis interview. Literature, courses, and software related to the topic of this project were researched. A plan for design and development was outlined. The designer estimated that learning activities and evaluation would take two hours on the average. The project would take twelve months to complete at the cost of $4,850.

CHAPTER 3

DESIGN

Introduction

The design phase of ISD used the results of the analysis phase to specify knowledge, skills, and attitudes needed for learners to achieve the instructional objectives. Instructional objectives were defined in detail in terms of performance, conditions, and criteria so that the results would be observable and measurable. Learner analysis provided information for defining the entry behaviors of learners. The objectives were arranged in logical order so that knowledge obtained in a previous learning activity became the entry behavior for the next activity in the sequence. The design phase also noted learning assessment system and evaluation techniques planned for use in the development phase.

Instructional Task Analysis

In the analysis phase a job task analysis was performed and the learning domains of the instructional goals were classified as intellectual/cognitive and verbal information. Instructional task analysis used those information to identify the subskills needed to complete the main tasks. The hierarchical approach (Dick & Carey, 1985) was applied in this analysis. It also determined the sequence of objectives. Appendix C shows the task analysis sheet with a list of tasks, the subskills for each task, and the steps needed to complete them.

Instructional Objectives

Mager (1984) defined instructional objectives as "a description of a performance you want learners to be able to exhibit before you consider them competent. An objective describes an intended result of instruction, rather than the process of instruction itself" (p.3). He suggested three elements to an objective: the performance or action to be taken, the condition under which the task will be performed, and the criteria that must be met to successfully complete the objective. For the four main tasks described in instructional task analysis, the designer identified six objectives. The instructional objectives for this project were:

1. Given a graphic representation and seven terms for chair anatomy, the learner will identify the parts of the chair. A successful identification must match the parts indicated to the correct terms of those parts.

2. Given a graphic representation of an anatomy part (a back, seat, or leg), the learner will describe that part of a chair with a variation term. A successful description must type in the correct variation term for the anatomy part in question.

3. Given different types of an anatomy part in graphic representation and a variation term, the learner will identify that variation term. A successful identification must choose the correct type of the anatomy part which matches the variation term in question.

4. Given eight style names and a graphic representation of a chair, the learner will describe that chair with a style name. A successful description must choose the correct style name which matches the chair in question.

5. Given five different styles of chairs in graphic representation and a style name, the learner will identify each chair with that style name. A successful identification must choose the correct chair which matches the style name in question.

6. Given a style name, five back variation terms, five seat variation terms, and five leg variation terms, the learner will design a chair for that style name. A successful design must depict a graphic representation of the given chair style by choosing the appropriate variation terms.

Entry Behaviors Defined

Entry behaviors are skills necessary to begin the instruction (Dick and Carey, 1985). With information from instructional task analysis and instructional goal, the designer identified two entry behaviors necessary to operate the software developed by this project:

1. That learners must be motivated to learn about American antique chairs.
2. That learners must be able to operate an IBM or compatible computer.

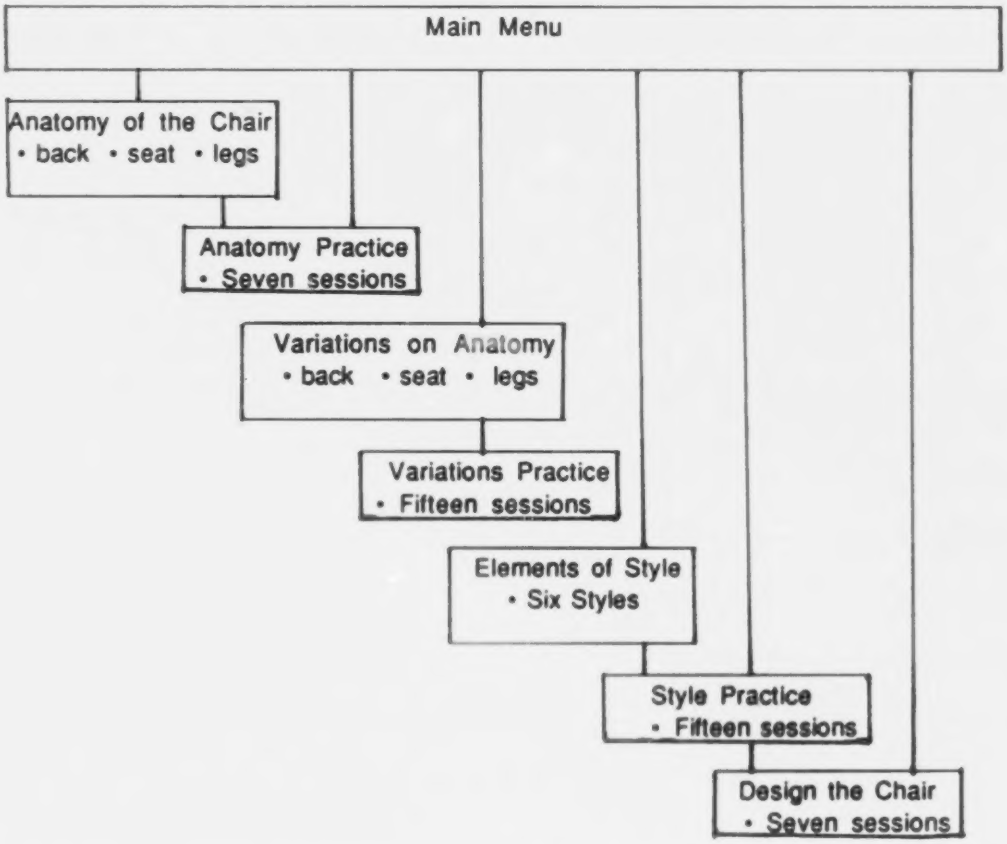
Entry behaviors were confirmed during the target population survey and again before implementation.

Group and Sequence Objectives

Earlier in the design phase, instructional objectives and their corresponding tasks had been placed in a logical sequence. Mastering a task learned earlier in the task sequence was essential for proceeding with the next task. Figure 1 illustrates the lesson flowchart for the sequence of objectives.

Figure 1

Lesson Flowchart



Learning Activities Specification

This project was composed of seven learning activities. The activities were self-paced and on the average they were approximated to take one hour. The pretest would take ten minutes and the post test twenty minutes. The primary medium used was a computer. The instructional strategies used were graphic presentation, practice session, problem-solving, and synthesis exercise. In this context, graphic presentation used picture representation of chairs, their parts, and styles, as well as their names (terms) to present information. Practice sessions allowed learners to use the information previously presented. The problem-solving technique let the learners discover the concepts on their own. Finally, the synthesis exercise demanded learners to use the terms and concepts learned. See Table 3.

Table 3

Learning Activity Instructional Strategy Matrix

Learning Activity	Content	Instructional Strategy	Medium
1.a	Anatomy	Graphics & verbal information	Computer
1.b	Anatomy Practice	Practice Session	Computer
2.a	Variation	Graphics & verbal information	Computer
2.b	Variation Practice	Practice Session	Computer
3.a	Style	Graphics & problem solving	Computer
3.b	Style Practice	Practice Session	Computer
4.a	Design the Chair	Synthesis exercise	Computer

In addition, the complete lesson plan incorporated Gagne's (1985) nine instructional events. See Table 4.

Table 4

Relationship of Lesson Plan to Internal Processes and Instructional Events

Internal Processes	Instructional Events	Lesson Plan
1. Reception	Gain attention	Change in color, blinking highlights, sudden beeps,& music
2. Expectancy	Inform learners of objectives	Objective of each lesson activity is told beforehand
3. Retrieval to Working Memory	Stimulus recall of prior learning	Practice sessions to use information just presented
4. Selective Perception	Present stimulus	Graphics, colors, highlights, beeps, and blinking cursor
5. Semantic Encoding	Provide learning guidance	Information with graphic examples and giving hints
6. Responding	Elicit performance	Practice sessions with learner's input which is self-paced
7. Reinforcement	Provide feedback	Immediate feedback to input
8. Retrieval and Reinforcement	Assess Performance	Practice sessions and summary feedback
9. Retrieval and Generalization	Enhance retention and transfer	Practice sessions, synthesis of all information, post test, & simulation

Assessment System Specification

Learning would be measured with criterion-referenced tests at the time of instruction. They were designed to measure instructional objectives of this project. The three types of tests planned were: pretest, embedded tests, and post test as suggested by Dick and Carey (1985). In addition, two entry behavior questions would be asked verbally to confirm if the learner was motivated to learn about American antique chairs and whether the learner had operated an IBM or compatible computer. These questions had also been asked while conducting target population analysis earlier.

The pretest measures prior knowledge on the subject to be taught. In this project, learners would be tested on six anatomy parts of the chair, ten variation terms for the part of the chair, and to name six American antique chair styles. The pretest would be in paper-and-pencil format. It is designed to include both graphics and verbal information. See Appendix D. The total (perfect) score is twenty-five points (100%). The learner's pretest performance would be used for pretest-post test comparison. The embedded tests measure the learner's mastery of skills and knowledge after information presentation. In this project, embedded tests would be the practice sessions which followed each section of information presentation, plus problem-solving exercise in the information presentation of elements of style section. Although embedded tests are practice items without feedback according to Dick and Carey (1985), in these practice sessions, feedback would be given in terms of correct or incorrect according to the learner's choice in the practice sessions; for elements of style a summary information would be given. The embedded tests also behaves as progress checks. The learner would not be able to perform successfully the tasks in the later sections without mastering the earlier sections.

The post test measures the learner's performance after instruction. It assesses all the objectives and subskills. The post test in this project would be in the same format as the pretest, but with different graphics and terms. See Appendix E. The score would be twenty-five points in total. It is expected to point out to the designer whether learners achieved the objectives and if not, which areas of instructions posed difficulty. All the tests mentioned became part of summative evaluation and instrumental in developing more efficient and effective future versions of learning activities. In addition, learners would participate in a simulation/roleplaying activity as described in Appendix H.

Evaluation System Specification

The evaluation system would include formative and summative evaluating techniques. Formative evaluation is the process of collecting information during the development phase to revise and refine the instructional activities and materials to achieve their objectives. Summative evaluation is conducted by collecting information on the final version of instruction (Dick & Carey, 1985).

In this project, formative evaluation activities would include two one-to-one evaluation sessions with two members from the target population. They would be expected to communicate frankly on the content and process of learning activities.

It would be followed by a small-group evaluation session. A small-group evaluation refers to the number of learners and not the instructional setting in which it would have taken place. In this project the small-group would consist of four learners. The learners would be selected from a cross-section of the target population. They would perform the instructional activities developed thus far with the designer present.

The third phase of formative evaluation would be the field trial. It is a pilot study which uses the lesson plan developed so far in the intended instructional setting. Changes suggested by one-on-one and small group evaluation activities would have been incorporated in this lesson plan. This project would use six learners from the target population. The pilot study would be conducted in the manner the actual training would occur which would be self-paced and self-instructional, and the designer would not be present.

The summative evaluation plan would be an ongoing process. It would analyze the data collected from pretest, post test, and simulation/role-playing activity to assess if the training objectives had been met. The results would be summarized and reported for the subject-matter expert as well as instructors who would use this training.

Learning Transfer System Specification

Learning transfer system is used to ensure that the knowledge, skills, and attitudes received from training are carried on to the job. In this project, the majority of the target population planned to deal in antique furniture in the future for personal or professional reasons. They do not belong to any one organization and therefore could not plan a uniform system to apply to ensure that the training would be used upon return to the job. The use of this skill and knowledge is contingent upon whether the learners have dealt with antique furniture before, or in the case of interior design students whether any information they obtained from this training is used in their present academic career. It also depends on enrichment and remedial activities the learners are encouraged and motivated to take after the training. This program can assure them before, during, and after the training to a certain extent. It is elaborated when evaluation techniques are discussed.

Review and Selection of Existing Materials

Research on existing materials was conducted in the analysis phase. No materials in the form of software, test items, or training systems for American antique furniture appeared during that search. However, content information and graphics were extracted from the literature identified during literature review in the analysis phase.

Summary

The design phase identified four main tasks to accomplish as a result of conducting the instructional task analysis. They were anatomy of the chair, variations on anatomy, elements of style, and design the chair. The subskills needed to perform the main tasks were also detailed in this analysis. Six instructional objectives were written with the performance, condition, and criterion components in them. The instructional objectives were arranged in a logical order so that the learners would be able to synthesize the information learned in each section to progress toward the final section. Seven learning activities were designed with specific instructional strategies and tied into Gagne's (1985) nine learning events. An assessment plan with criterion-referenced tests, as well as formative and summative evaluation approaches were also described in the design phase of ISD.

CHAPTER 4

DEVELOPMENT

Introduction

During the development phase of ISD, the designer developed the learning activities specified in the design phase. The development for this project was in CBT format. The CBT lesson was programmed, reviewed, and evaluated. Materials for evaluation were also developed and refined. The final product of this phase was the American Antique Chairs courseware to be operated by the target population and test materials for evaluation.

Learning Activity Development Scheme

In developing the CBT lesson for this project, the instructional strategy as prescribed by Dick and Carey (1985) was applied. The major components of this strategy are:

1. Pre-instructional activities
2. Information presentation
3. Student participation
4. Testing
5. Follow through

Information presentation in this project included filling out the learner's questionnaire (Appendix A) to establish the entry behaviors as part of conducting the need analysis and administering the pretest (Appendix D). The learners would be given the user guide sheet (Appendix F). It contained basic information on how to operate the software and references to further their knowledge on American antique chairs. In the CBT software itself, "The Objective" screens (Appendix G) were presented before each lesson activity to motivate the learners and let them know the objectives of the up-coming activity.

Information presentation took into account content presentation with graphics and verbal information which were related to the objectives. The logical sequence in which the screens should appear was based on the instructional task analysis. The number of screens each lesson should contain determined the size of the instructional unit. The content was grouped into one idea per screen. Information was presented in color, highlights, and blinking cursor to achieve some of Gagne's (1985) instructional events. The text was brief and simple. The graphics were also kept simple. The software provided with the capability to refer back to prior screens.

Student participation was in the form of studying the information screens and applying them in the practice session. The student were also given immediate feedback on their performance. Questions and answers allowed interaction between the instruction and learners. They were required to type in the terms or phrases for some of the answers. Student participation was essential because if learners did not answer with key presses the screens would not proceed.

Testing occurred before the instruction via pretest (Appendix D), during the CBT lesson with embedded tests in the form of practice sessions (Appendix G), and after the instruction with post test (Appendix E). The pretest and post test were paper-pencil activities.

Follow-through activities came in the form of the learner designing an American antique chair on the screen. The objective would be achieved by synthesizing the subskills learned in previous activities. It was a form of enrichment exercise. In addition, a simulation exercise (Appendix H) was also performed to enrich the knowledge and skills learned during the CBT sessions. Remediation was allowed during the instruction. Learners could return to any activity via main menu and sub-menus. Since the CBT lesson was self-paced and learner-controlled, the learner could review as many times and as long as they wished. References in the user guide would also help with enrichment and remediation if the learners wished to pursue the topic further after the CBT lesson.

With the above scheme in view, a prototype was developed. It included one screen per type of activity. The formative evaluation process brought about two versions of the CBT courseware, the second of which became the final product for implementation.

Learning Activity Development

By using the phases of ISD model and the Eight-step model for CBT described by Alessi and Trollip (1985) the instructional development procedure was followed as outlined in Table 5.

Table 5

Instructional Development Procedure for the American Antique Chairs Software

Phase	Development Activities
Analysis	1. Define the purpose of each lesson activity with the with the instructional goal in view.
	2. Collect resource materials for the input and output information to impart the user.
Design	3. Generate ideas for the lesson and alternative ways to present and process the information.
	4. Organize the ideas for the lesson in a design document outline.
	5. Produce lesson displays on paper which include creating graphics and writing verbal information, and storyboarding.
	6. Flowchart the lesson to describe the lesson sequence and computer operations to perform them.
Development	7. Program the lesson for a prototype of the CBT coursware.
Implementation & Evaluation	8. Evaluate the quality and effectiveness of the lesson by testing the CBT coureware with people performing formative evaluation. Revise and debug.

Since the medium used for the learning activity in this project was the computer, the following guidelines suggested by Alessi and Trollip (1985) were observed.

- Consistent style, format, and terms for all menus
- Match the question type to the lesson objectives by considering different forms of scripting (e.g., multiple choice, fill-in-the blank, matching)
- Consistent wording and layout of questions
- Clear instructions about method of answering
- Set number of tries
- Construct feedback for correct and incorrect.

In developing the learning activities the designer found ready information on American antique chairs. Since most of the information was scholarly even when it was intended for amateurs, the designer was presented with the challenge to choose only the information needed for lesson input and output. The attempt was to simplify and still meet the objectives. This challenge was guided by the lean strategy (Markle, 1988). The basis of this strategy was to include minimum teaching material in the early drafts and let the learners' responses and reactions guide what material and information should be included in the final version. The subject-matter expert was also consulted regularly.

Since the computer was the medium of instruction in this project, the designer had to learn about human factor activities. They included interfacing between the subject matter expert and programming which was acquiring the expert's knowledge, and then representing that knowledge in CBT form.

The deliverables for the development phase were the CBT software, user guide, and materials for evaluation. A complete list of the storyboard from which the software was programmed is compiled in Appendix G. The designer created eighty-five text screens and fifty-nine graphic screens to underlay. Two of the graphic screens included music for the title and quit screens.

The most time consuming aspect of development was creating graphics and incorporating them into the lesson. The graphic tools provided by the authoring system were cumbersome at times and there were many graphics to create. Debugging after each formative evaluation stage also took time beyond it was originally planned. As a result, the time for development phase extended and therefore, implementation was delayed by three weeks.

Learning Activity Review

The completed learning activity package was reviewed by the subject matter expert for accuracy of content. The designer proofread the package noting appropriate vocabulary, grammar,punctuation, correct spelling, and page format. The technical expert reviewed the programming aspects to ensure that software performed in the way it was designed.

Materials for Evaluation Produced

In this project materials for evaluation included:

1. The American antique chairs knowledge survey I for pretest
2. The American antique chairs knowledge survey II for post test
3. Forty-eight pictures of individual chairs and eighteen pictures of interior decor mounted as flashcards for simulation exercise
4. Practice sessions incorporated in the CBT courseware to act as embedded tests
5. CBT courseware checklist
6. The end-of-course questionnaire.

The purpose and the manner in which these materials were used would be elaborated in the evaluation chapter.

Summary

During the development learing activities were developed. The learning activity scheme was composed of pre-instructional activities, information presentation, student participation, testing, and follow-through activities as described by Dick and Carey (1985). The learning activity for the CBT lesson followed Alessi and Trollip (1985) with eight steps: defining the purpose, collecting resource materials, generating ideas, organizing those ideas, producing storyboards, flowcharting the lesson, and evaluating by testing out the CBT lesson. The learning activities were then reviewed by the designer, the subject matter expert, and the technical expert. The reviews determined the CBT courseware's readiness for implementation phase. In addition, the CBT user guide and materials for evaluation were produced. They included pretest and post test surveys, pictures for simulation exercise, courseware checklist, and end-of-course questionnaire.

CHAPTER 5

IMPLEMENTATION

Introduction

Implementation is the process of administering the instructional activities to the learners. It included using the final version of the software, the guide sheet, and evaluation materials which had been developed and reviewed. The revised instructional materials were the result of formative evaluation where every error was corrected and deemed to have met the learning objectives.

Materials for Implementation Reproduced

The formative evaluation process resulted in the final version of the American antique chairs lesson disk. The media locator sheet in Appendix I shows where the CBT software can be obtained. The designer made five copies for the learners. Forty-eight flashcards of individual chairs and fourteen pictures of interiors for the simulation exercise were reproduced. The designer also made twenty copies of the user guide and for each of the other evaluation materials. They included the American antique chairs knowledge survey I (the pretest) the American antique chairs knowledge survey II (the post test), the evaluation checklist, and the end-of-course questionnaire.

Instructional Delivery

Members of the target population were contacted during the second week of March, 1990 regarding the up-coming training program. Initially the population consisted of twenty-five potential learners when the target population survey was conducted. Ten target learners participated during the formative evaluation phase. Five decided not to take the training. Ten learners participated in the implementation phase. The participants in the implementation phase consisted of ten people: two antique sales personnel, four interior design students, and four antique furniture enthusiasts. They were divided into two groups of five. Although the

CBT program itself was self-instructional, the designer administered the evaluation activities which were paper and pencil and verbal activities. The evaluation activities were considered as part of the instruction and the overall process took the following steps.

1. The pretest was administered to the learners before they participated in the CBT program. It was scored, the perfect score was twenty-five points. The American antique chairs survey I, which was used as the pretest, is shown in Appendix D.
2. The CBT user guide sheets (Appendix F) and five copies of American antique chairs lesson disks were given to five learners on April 2, 1990. Since the lesson delivery was via the CBT program, learners could receive the instruction any time they wished at their own pace during the one week that the disks were loaned to them. The computer-managed instruction (CMI) component of the program recorded learners' log-ons and log-offs, usage of each instructional section, and their responses and answers. The disks were collected on April 9, 1990. The disks and user guide sheets were then given to the second batch of five learners on April 11, 1990 and collected on April 18, 1990. Information regarding the lesson disk appears on the disk locator sheet in Appendix J.
3. At the time of collecting the disks, the learners were administered the post test. The total (perfect) score was twenty-five points. The post test in the form of the American antique chairs knowledge survey II is shown in Appendix E.
4. It was followed by the simulation exercise described Appendix H.
   - The first exercise used twenty flashcards. They were three William and Mary styles, two Queen Anne styles, two Chippendale styles, two Windsor styles, four Hepplewhite styles, two Sheraton styles, and five non-18th century American chairs. The total (perfect) score was fifteen points.

- The second exercise used ten interior decor pictures. The total (perfect) score was ten points.

The CBT instruction occurred either at the learners' college or residence. The evaluation activities occurred either at the learner's college or the designer's residence.

Data Collection

The CMI record and evaluation activities produced data to be assessed for summative evaluation of the entire project. The primary goal of the summative data was to find out if instructional goals were achieved. The data collection process was via surveys, questionnaire, and evaluation of the skills and knowledge attained by the learners. In addition, the designer administered the pretest and post test to another group of ten people for comparative study. The group included one antique store employee, four design students, and five antique furniture enthusiasts. The data and its use to the project is illustrated in the evaluation chapter.

Summary

The implementation phase produced a thoroughly reviewed and error-free version of American antique chairs lesson disks, guide sheets, and evaluation materials. The process of applying the materials in delivering the instruction was described step by step. The process of collecting the data for summative evaluation of the instruction was also described.

CHAPTER 6

EVALUATION

Introduction

Evaluation, although listed last in the ISD model, is a continuing procedure to help maintain and improve the training program. The process covers assessing performance, identifying apparent and potential problems, and undertaking corrective actions. Continuing this process past implementation will benefit future operation of this training activities and perhaps similar ones. In this project the designer conducted formative and summative evaluation procedures to produce reliable and valid training materials as well as to find out if the training itself achieved its objectives.

Formative Evaluation

Formative evaluation is the process of collecting information during the development phase to revise and refine the instructional activities and materials to achieve their objectives (Dick and Carey, 1985). In this project, formative evaluation activities included one-on-one trials, small group trial, and pilot test as prescribed by Gagne and Briggs (1979).

One-on-One Trials

The designer conducted two one-on-one trials with an interior design student and a furniture enthusiast at the designer's residence. The two were chosen because they had already established an excellent rapport with the designer. Each person first received explanation that the designer wished to receive user reaction to a new CBT program. They were encouraged to communicate frankly on the content as well as the process of learning activities, including evaluation materials. The designer sat down with the learners and went through the program step by step together, giving immediate feedback or explaining every concern the learners encountered and anticipated. Interacting with the learners was the key to this process.

The designer received initial reactions to the training program and discovered obvious typographic and grammatical errors. Questions in practice sessions on the CBT software were re-phrased, and additional statements and questions were added to the checklist and questionnaire.

As the result of one-on-one trials, the following additions were made:

1. Anatomy information presentation was divided into three screens starting with back parts. The next screen showed back and seat parts, followed by a screen with back, seat, and leg parts.
2. Three screens each were added to anatomy, variations, and style practice sessions.

Small Group Trials

A small group refers to the number of learners and not the instructional setting in which it would take place. In this project the small-group consisted of four learners. The learners were selected from a cross-section of the target population who have no previous knowledge of content. They included two pretest high-achiever and two pretest low-achievers, and two of whom were native English speakers and two were foreign students. The rationale for that selection was to get a representative sample of the target population. They performed the instructional activities developed thus far with the designer present. The trial took place at one of the participant's workplace where there were four computers that would run the prototype software which had been revised on the basis of one-to-one feedback.

The process began with the designer explaining about the formative phase of development and the purpose which was to get feedback to improve the training program. The instruction was delivered, including the surveys, simulation exercise, and questionnaires just as it would have been implemented in the final version. The designer observed, taking notes on user behavior. It included puzzled expression over an activity, long pauses at specific screens, speed of responses and answering screen questions, and time it took to operate the software and conduct the evaluation activities. Upon completion of the lesson, the designer asked questions based on the notes taken.

The designer, together with the four learners assessed the changes made after the one-to-one trial and identified further revisions to be implemented. The small group trial also endorsed that learners can use the instructional materials without the designer or instructor intervention.

As a result of the small group evaluation activities, the following changes were made:

1. Seven screens each were added to variation and style practice sessions.
2. Design the chair section was added to the main menu. For this new section seven design sessions were created.
3. Six summary screens for elements of styles were added.
4. One question was added to CBT courseware checklist.
   - Please write any other comments you wish about this software.
5. Two questions were added to end-of-course questionnaire.
   - How soon do you think you can apply this knowledge?
   - How can this program be improved?
6. Music was added to title and quit screens to indicate the beginning and the ending of CBT program. They also served as stimuli to catch learners' attention.

Pilot Test

The pilot test used the lesson plan developed in the intended instructional setting. Changes suggested by one-on-one and small group evaluation procedures had been incorporated in this lesson plan. Four learners from the target population participated in the pilot test. Although the designer administered the evaluation activities, the designer was not present during the CBT operation. The software was given to the learners who were expected to operate it anywhere they wished, self-paced and self-instructional, just as a routine implementation would take place.

Again, revisions made thus far were evaluated for effectiveness and the designer determined that the training could occur in the environment it was intended. All four learners agreed that no further revision was necessary. The software worked without hitch and the evaluation tests gathered appropriate information and data.

It should be pointed out that throughout the formative evaluation phases, the designer consulted the subject matter expert and Mr. Hal Christensen, a CBT and technical expert on the Summit authoring system, to implement learners' concerns.

Summative Evaluation

Summative evaluation collects data from the instruction and interprets it to determine the validity and reliability of the instruction for the target population. Kirkpatrick (1976) described four components to the summative evaluation procedure: reaction, learning, behavior, and results. The manner in which these components relate to in this CBT project are discussed in this section.

Reaction

Reaction can be seen as an emotional component of the evaluation procedure. It asks learners about their feeling regarding the training and how positive or negative their experience is perceived. In this project, reaction was gathered through the CBT checklist shown in Appendix J and the end-of-course questionnaire shown in Appendix K. The primary purpose of the checklist was to determine if information presentation was acceptable in terms of the appearance and text and graphics. The questionnaire illustrated learners' experience and attitude toward the training program, and how well it was accepted by the participants. The data from the checklist and questionnaire are displayed in Appendix L.

Learning

Learning is receiving and understanding the concepts, skills, and knowledge imparted by the training. It is the extent to which learners absorb and process the information presented. In this project learning was measured via pretest-post test method. By comparing the scores obtained from the two tests the designer determined how much learners improved their knowledge of American antique chairs in terms of points and percentage. The data is shown in Table 6. The perfect score for each test was twenty-five points. The CBT learners improved by 71.2 percent.

Table 6

Pretest vs. Post Test Average Scores for CBT Learners

(n=10)

Pretest		Post Test	
points	%	points	%
4.1	16.4	21.9	87.6

Behavior

Behavior is concerned with performance; if learners can and do apply the information they have obtained in a real-life situation, such as on-the-job. In this project assessment of behavior was a major constraint. First, the target population did not belong to a single organization; they were antique sales personnel at different stores, interior design students from different colleges, and furniture design enthusiasts at different location. Ideally, the designer should be able to observe the learners in real-life situation:

- Whether the sales personnel are able to identify and describe American antique chairs to their customers.
- Whether the interior design students are able to recognize and differentiate from other styles when they come across American chairs in their study, and more importantly when they buy and sell them in their future profession.
- Whether the furniture design enthusiasts can also recognize and differentiate the different styles as they buy and sell chairs, or as part of their hobby when they visit museums or exhibitions.

The designer created an alternative to assess behavior in the form of simulation exercises shown in Appendix H. The activity followed closely to real-life situation. It was endorsed by the subject matter expert as a viable alternative. The average score was 20.1 points out of twenty-five points.

Results/Impact

Results/Impact are basically stated in terms of objectives, such as cost reduction, turnover or absenteeism reduction, increased productivity, and improved morale. Results are concerned with the the long-term effects of training. Immediate results from learning were obtained for this project, but the time-lapsed results were not possible. The constraints as stated before were in the forms of lack of central workplace or location, and the elapsed time factor.

The alternative approach the designer used in this project is a comparative study between this CBT program (experimental group) with others (control group) who were learning on-the-job and in an academic setting. The latter group of people were given the pretest during the first week of February and post test and simulation exercise during the last week of April. The purpose was to find out if they had acquired the skill and knowledge in their own settings. The pre- and post test scores as well as the simulation exercise scores between the two groups yielded the results of how well the CBT setting achieved its objective. The results showed that the degree of improvement was larger with the CBT learners. The data from these test score comparisons appear in Table 7.

Table 7

Comparison of Pretest, Post Test, and Simulation Exercise Average Scores for CBT Learners vs. Non-CBT Learners (Perfect Score = 25 points)

Group	Pretest points	Pretest %	Post Test points	Post Test %	Simulation points	Simulation %
CBT Learners (n=10)	4.1	16.4	21.9	87.6	20.1	80.4
Non-CBT Learners (n=10)	5.4	21.6	6.8	27.2	7.2	28.8

Another planned approach is to conduct a phone survey on whether learners are using the skills and knowledge they have gained from this CBT program in real life. For people who are working in professions where chairs are dealt with, the designer can interview their employees or supervisors of their performance in identifying and describing American antique chairs.

Learning Transfer

Broad (1982) has recommended that learners, trainers, and managers can take actions before, during, and after instruction to ensure that training results are transferred to the job. The contention is that learning transfer is a concerted effort, generally achieved in situations where management supports the training and its application in the workplace.

This project relied on learners and the trainer (the designer and the CBT software) only. Since learners did not belong to a single organization, management did not participate in learning transfer actions. However, the designer included the section for management in Table 8 to show actions management could take if they participated. Table 8 shows a summary of actions to enhance learning transfer.

Table 8

Learning Transfer Actions

	Before	During	After
Learner	List skills needed for the job or to satisfy interest.	Relate the activities to reflect future behavior.	Use resources received from CBT program.
Trainer	Confer with learners and professionals in the the field.	Realistic CBT activities to refelct future work.	Develop better, advanced, and related CBT programs.
Management	Participate in analysis, design, & development of the program.	Ready support with subject information and encouragement.	Help set goals to apply training to the job.

Management in Table 8 refers to antique store manager or owner for the sales personnel, teachers for the interior design students, and their own selves for the antique furniture hobbyists.

Summary

The evaluation process took place over the entire project. Formative and summative evaluation techniques were used in this project. Formative evaluation which occurred during the development stage of ISD had three stages: two one-on-one trials, a small group trial, and a pilot test. In each stage the program was thoroughly reviewed and revised. The first two stages gave two versions of the CBT software and evaluation materials. The pilot test confirmed that the program was acceptable for implementation. Summative evaluation process occurred after the implementation stage of ISD. The designer followed Kirkpatrick's (1976) scheme of reaction, learning, behavior, and results to evaluate the training program. Summative evaluation data was also displayed to show that the program achieved its goals.

CHAPTER 7

SUMMARY AND RECOMMENDATIONS

Introduction

This chapter summarizes the project described and discussed in the first six chapters. It gives an overview of activities that occurred during each ISD phase of the project. This chapter concludes the project with recommendations for other designers to imagine and create future versions of this CBT project.

Methods and Procedures Used

The methods and procedures for this project followed the Florida State or Interservice Model of Instructional Systems Design (ISD). Each phase is briefly summarized below.

Analysis

Needs analysis was conducted to assess the need for training to bridge the gap between present performance and desired performance. Information to determine training need was received through job task analysis, target population analysis, and examining organizational constraints. As a result of the analyses, an instructional goal was set for the project: that learners will be able to identify and describe 18th century American antique chairs.

Design

Instructional task analysis was conducted to show tasks and steps required to accomplish those tasks, which would culminate in achieving the goals. Objectives were written with three components to each objective: the performance, the condition, and the criteria for successful performance under specified condition.

Development

The CBT courseware, CBT user guide, pretest, post test, simulation exercise, CBT courseware checklist, and end-of-course questionnaire were produced in this project. A great deal of time was spent storyboarding, programming with the Summit authoring system, evaluating, and debugging it.

Implementation

The training was implementation via the CBT software. It was self-instructional at learners' own pace and choice of location. The designer administered the evaluation materials at planned moments and data were collected.

Evaluation

The formative evaluation was conducted during the development of the program. It had three stages: one-on-one, small group, and pilot test. Three versions of the program were produced; the third was used for actual implementation.

The designer conducted the summative evaluation when implementation was completed. The data on reaction, learning, behavior and results/impact was collected and assessed. The data gave the verdict that the target population were able to identify and describe 18th century American antique chairs.

Conclusions

The designer had a most interesting practical learning experience while working through the project phases. The experience shows that, given the problems identified at the outset, CBT technique has been an efficient and effective way to present the information from the learners' and designer's points of view. From the learner's perspective the learning process has been gentle and enjoyable sitting through forty-nine bits of information on chairs.

Considering the different groups in the target population, the vast amount of information on 18th century chairs, and the time constraints everyone had to face, the CBT courseware has been a productive effort for the participants. The users indeed can now recognize six styles of 18th century American antique chairs, and can identify and describe in terms of the features that distinguish one from another. They reacted positively, learned, and can most likely apply their knowledge and skills to their jobs, studies, and hobby. The impact has been a success!

Recommendations

The recommendations stem from the experience and outcome of the ISD. The designer sees the primary purpose of the training as serving the target audience and therefore, recommend the following to improve the training program.

1. Since the target population is diverse, course content may be tailored to serve each group. For example, how to tell an antique from a reproduction for sales personnel; how a period interior decor is arranged using 18th century style chairs.

2. If there is access to a scanner, photographs of actual period chairs should be imported into the Summit graphic screens. It would have been a more realistic representation for learners to study. With high quality graphics the chairs could be programmed to rotate so that learners can observe three- dimensionally. Scenes of period interior decor can also be scanned into the CBT program for more realistic observation.

4. Information on different forms of carvings should also be included as part of variations on anatomy.

5. Instead of returning to the main menu or submenu to review an information presentation section, screen travel should be easier by programming certain function keys whereby the desired screen appears in one key stroke.

6. The CMI should be programmed discriminately so that only relevant data on user response is recorded instead of having it record every keypress.

7. As part of the training, visit to the museums, exhibitions, and auction houses should be arranged if feasible for first-hand experience.

Concluding Statement

My first-hand experience with the CBT courseware for American antique chair styles has been delightful. The most enjoyable part was thinking about and creating the storyboards and transferring them into a useable, useful, and usually engaging program. The general approach of this project was to use as few words as possible in presenting the information. Instead of describing and explaining the Queen Anne style for example, I showed instances of the Queen Anne style. Having worked in an antique store and enjoyed interior design and furniture design, I know that fellow enthusiasts will be a willing target audience to participate in programs on other pieces of decor like Chinese tables, Italian beds, Korean cabinets, Japanese screens, French vases.... The principles of this program can be conveniently transferred to training and learning a roomful of possibilities. Imagine.

APPENDIX A

TARGET POPULATION QUESTIONNAIRE

Page 1 of 2

CBT FOR AMERICAN ANTIQUE CHAIR STYLES
TARGET POPULATION SURVEY

==

Today's date: ______________________

Occupation: ______________________

Company/School: ______________________

Nationality: ______________________

==

1. How interested are you of learning about American antique chair styles? Please circle the number which corresponds your interest.

Very interested (5)---(4)---(3)---(2)---(1) Not at all

2. Have you used a computer before?

Please circle one: YES NO

If YES, name the computer(s) that you used:

____

3. Have you used computer-based training or instruction before?

Please circle one: YES NO

If YES, name the program(s) that you used:

____

4. Have you taken any courses on antiques?

Please circle one: YES NO

If YES, name the program(s) that you have taken:

____

5. Have you ever bought and/or sold antiques?

Please circle one: YES NO

If YES, specify them:

(Example: 18th century American chairs, Tang Dynasty Vases)

____

____

6. Do you plan to buy and/or sell antiques in the future?

Please circle one: YES NO

If YES, specify them:

____

____

7. Are you willing to participate in a computer-based training that trains you to recognize American antique chair styles?

Please circle one: YES NO

If YES, please give the following information:

Name: ________________________

Address: ________________________

____

Telephone: ________________________

The training designer will contact you in March 1990 to participate in this program.

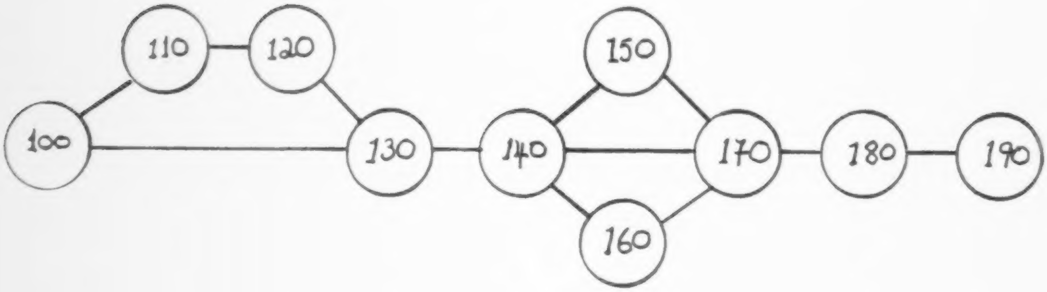
THANK YOU VERY MUCH.

APPENDIX B

PROJECT PLAN

PERT DIAGRAM

Plan for the ISD Phases of the Thesis/Project

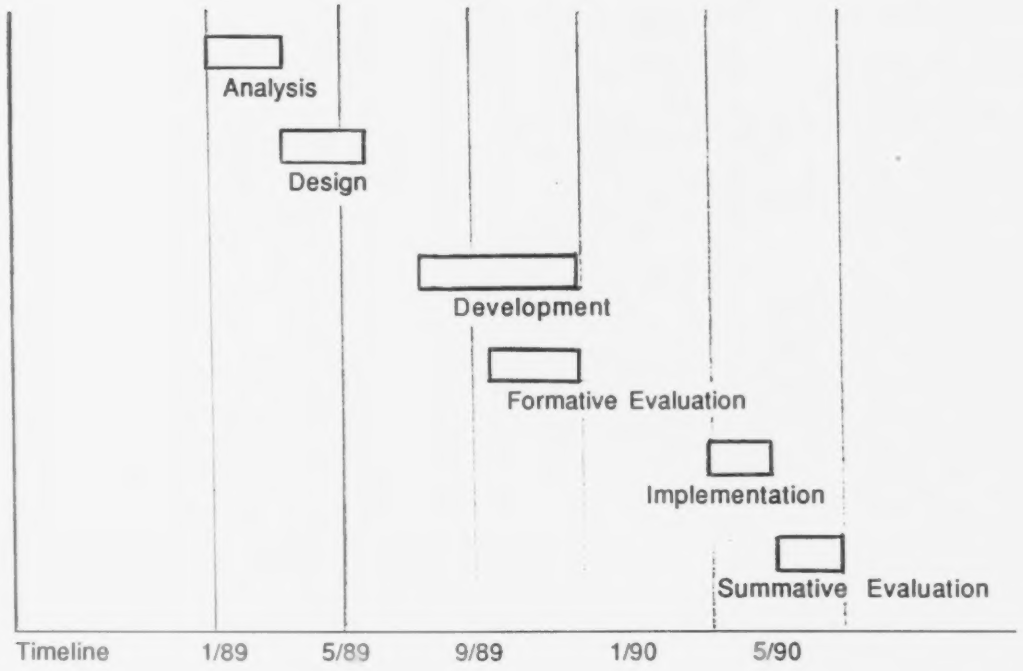


PERT INDEX

100-110	Conduct need analysis
110-120	Conduct task analysis
100-130	Plan for up-coming ISD phases
130-140	Design the CBT program
140-150	Develop the CBT software
140-160	Develop the evaluation materials
140-170	Conduct formative evaluation
170-180	Implement the training program
180-190	Conduct summative evaluation

Ganntt Chart

Plan for the ISD Phases of the Thesis/Project



APPENDIX C

TASK ANALYSIS SHEET

TASK ANALYSIS SHEET

for AMERICAN ANTIQUE CHAIRS project

TERMINAL OBJECTIVE: That learners will be able to describe and identify six styles of 18th Century American antique chairs.

TASK 1.0: ANATOMY OF THE CHAIR

Subskill: To identify the names of the parts of a chair

Steps
1.1 Retrieve anatomy of the chair information from the main menu.
1.2 Read the objective.
1.3 Study the graphics and terms on the information presentation screen.
1.4 Retrieve the anatomy practice session from the main menu.
1.5 Read the objective.
1.6 Match the parts indicated on the graphic to the anatomy terms.
(Instructional Objective 1)

TASK 2.0: VARIATIONS ON ANATOMY

Subskill: To recognize the different forms of backs, seats, and legs

Steps
1.1 Retrieve variations on anatomy from the main menu.
1.2 Read the objectives.
1.3 Choose either the back, the seat, or the legs from the sub-menu.
1.4 Study the graphics and terms on the information presentation screen.
1.5 Retrieve the variations practice session from the main menu.
1.6 Read the objectives.
1.7 Choose the correct variation term to match the given anatomy part.
(Instructional Objective 2)
OR,
Choose the correct type of anatomy part to match the given variation term.
(Instructional Objective 3)

TASK 3.0: ELEMENTS OF STYLE

Subskill: To recognize six 18th Century American antique chair styles

Steps
1.1 Retrieve elements of style from the main menu.
1.2 Read the objective.
1.3 Choose the style of chair from the sub-menu.
1.4 Study the graphics.
1.5 Type in the common features.
1.6 Repeat steps 1.3 through 1.5 until all six styles are completed.
1.7 Retrieve the style practice session from the main menu.
1.8 Read the objectives.
1.9 Choose the correct style name to match the given graphic of a chair. (Instructional Objective 4)
OR,
Choose the correct graphic of a chair to match the given style name. (Instructional Objective 5)

TASK 4.0: DESIGN THE CHAIR

Subskill: To synthesize all three previous tasks learned.

Steps
4.1 Retrieve design the chair from the main menu.
4.2 Read the objectives.
4.3 Choose the correct types of back, seat, and legs to build the given chair style. (Instructional Objective 6)

APPENDIX D

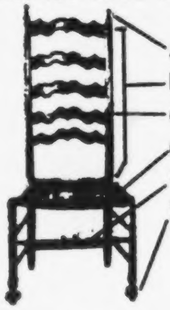
AMERICAN ANTIQUE CHAIRS KNOWLEDGE SURVEY I

Page 1 of 2

AMERICAN ANTIQUE CHAIRS KNOWLEDGE SURVEY I

Name: ______________________________ **Date:** ____________________

1. Please write the names of the parts identified below.



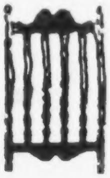
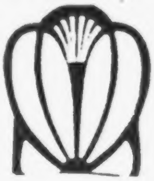
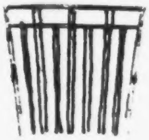
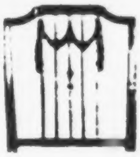
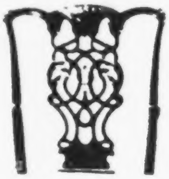
a = ______________
b = ______________
c = ______________
d = ______________
e = ______________
f = ______________

2. Please match the VARIATION TERMS to the chair parts.

VARIATION TERMS

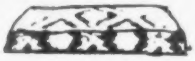
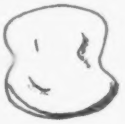
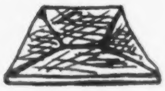
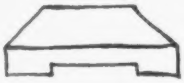
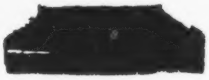
a. cyma-curved
b. carved splat
c. marlborough
d. square
e. heart
f. tapered
g. caned
h. nailed
i. pad
j. saddled
k. spindle
l. triffid
m. banister
n. cabriole
o. uphostered

BACKS

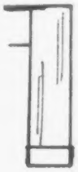
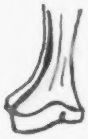
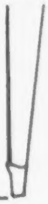
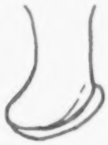
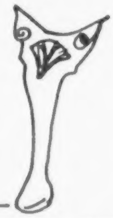
Answers: _____ _____ _____ _____ _____

SEATS

Answers: _____ _____ _____ _____ _____

LEGS & FEET

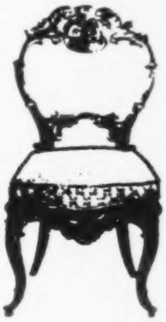






Answers: _____ _____ _____ _____ _____

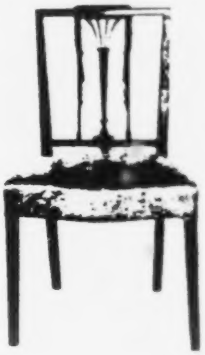
Name: ______________________

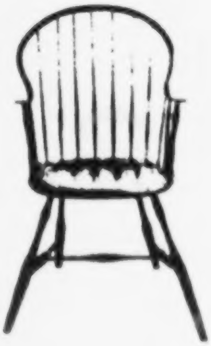
3. Please write the STYLE names of the following chairs.

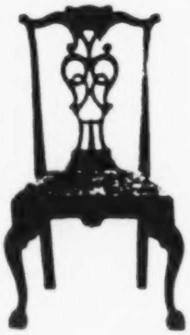
Example:

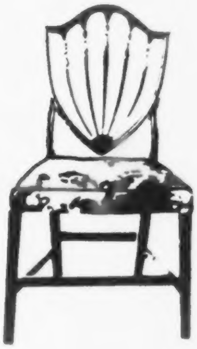


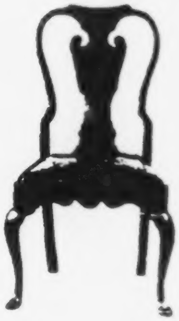
Victorian

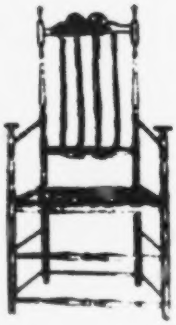


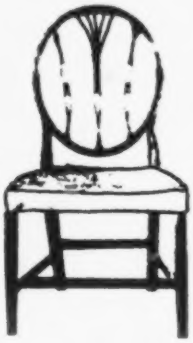












THANK YOU VERY MUCH.

APPENDIX E

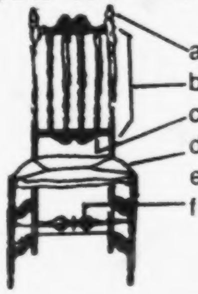
AMERICAN ANTIQUE CHAIRS KNOWLEDGE SURVEY II

Page 1 of 2

AMERICAN ANTIQUE CHAIRS KNOWLEDGE SURVEY II

Name: ______________________ **Date:** ______________________

1. Please write the names of the parts identified below.



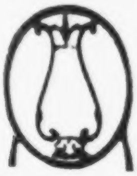
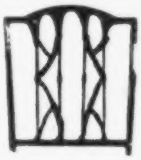
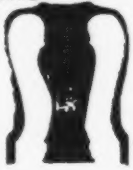
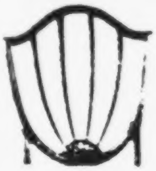
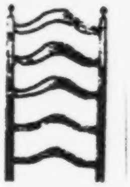
a = ____________________
b = ____________________
c = ____________________
d = ____________________
e = ____________________
f = ____________________

2. Please match the VARIATION TERMS to the chair parts.

VARIATION TERMS

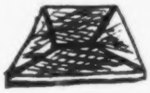
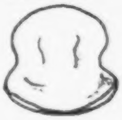
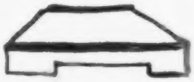
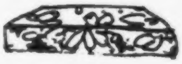
a. ball & claw
b. cyma-curved
c. solid splat
d. oval
e. pad
f. slat
g. square
h. tapered
i. sheild
j. nailed
k. caned
l. scroll
m. cabriole
n. saddled
o. uphostered

BACKS

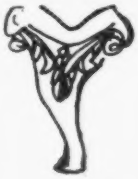
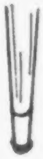
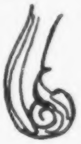
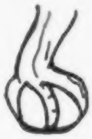
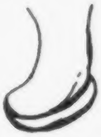
Answers: ____ ____ ____ ____ ____

SEATS

Answers: ____ ____ ____ ____ ____

LEGS & FEET

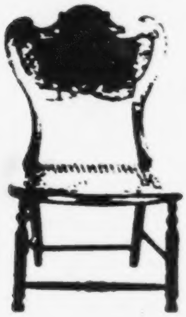






Answers: ____ ____ ____ ____ ____

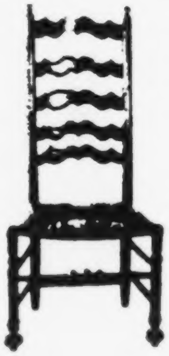
Name: ______________________________

3. Please write the STYLE names of the following chairs.

Example:



Victorian



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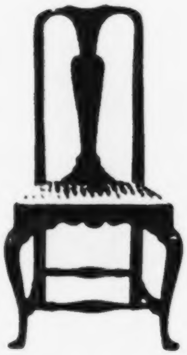

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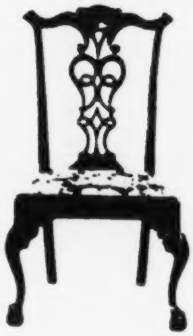

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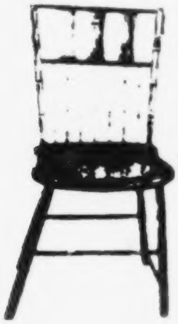

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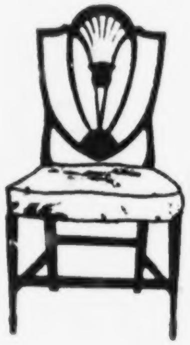

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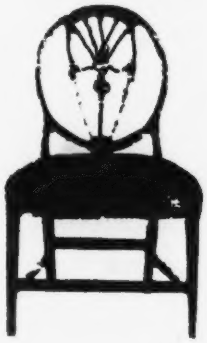

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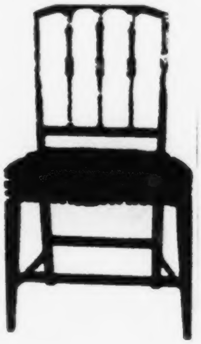


____

THANK YOU VERY MUCH.

APPENDIX F

CBT COURSEWARE USER GUIDE SHEET

CBT COURSEWARE USER GUIDE SHEET

NAME OF THE SOFTWARE: ***American Antique Chairs***

THE GOAL: The goal of this software is to train you to recognize the styles of 18th century American chairs.

TO LOG ON: (1) Boot DOS.

(2) Insert the American Antique Chairs disk in drive A.

(3) At the **A>** prompt, type **go2**.

"@start" not found message will appear.

(4) Press **<spacebar>**. The following message will appear.

```
Enter the name of the screen at which to start, or 'exit' to end
>
```

(5) At the **>** prompt, type **aac**.

The screen will go blank for a while and music will be played, and then the title will appear.

TO LOG-OFF: (1) Select **QUIT** from the main menu.

Music will be played.

(2) Press **<F3>**.

A> prompt will appear.

FUNCTION KEYS:

<F1>	Previous screen	<F3>	Next screen	<F4>	Help message

NOTE: WHEN YOU PRESS <RETURN> ON MENU SCREENS, YOU MUST FOLLOW WITH **<F3>** TO SEE THE NEXT SCREEN.

Page 2 of 2

CBT COURSEWARE USER GUIDE SHEET

REFERENCES FOR AMERICAN ANTIQUE CHAIRS

If you wish to learn further about American antique chairs, the following books may be helpful and interesting to you.

1. Butler, J. (1985). *Field guide to American antique furniture.* New York: A Roundtable Press Book.

It is a pictorial book with drawings of chairs, tables, cabinets, mirrors, and miscellaneous furniture. Each furniture depicted is accompanied by brief notes on the style and dates for the appearance of that style. The graphics are clean and simple.

2. Davidson, M. and Stillinger, E. (1985). *The American wing at the Metropolitan Museum of Art.* New York: Alfred A. Knopf, Inc.

An illustrated volume with important collection of seventeen of the famous American period rooms with authentic furniture, paintings, lamps, tableware, and other ornamental pieces. Especially relevant are four centuries of American chairs in the decor that it originally would have appeared.

3. Fairbanks, J. (1981). *American furniture, 1620 to the present.* New York: Richard Mark Publishers.

This book is a survey of American furniture illustrated with photographs. Commentary on the history and social systems of the time and how they influenced furniture styles are also included.

4. Miller, E. (1966). *American antique furniture, 1.* Baltimore, MD: The Lord Baltimore Press.

Volume one shows an extensive variety of individual period chairs. Each photograph of the chair is accompanied by a brief description about its important features in relation to regional flavor. Important facts about some furniture-makers are also noted.

5. Williams, H.L. and Williams, O.K. (1966). *Great houses of America.* New York: G.P. Putnam's Sons.

An illustrated book of thirty of America's most distinguished houses. The history, architecture, landscaping and gardens, interior decor and furnishings are described for each house with photographs.

APPENDIX G

STORYBOARDS

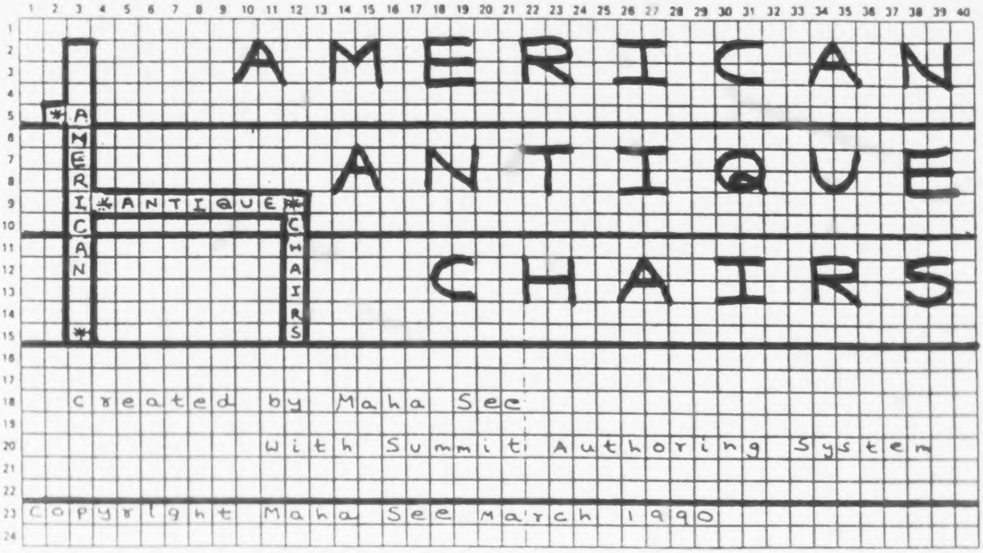
Screen Name AAC Section 1 Screen Type Info. presentation (IP) Lesson Title

☑ Include in Reporting Border Color — Display Speed Learner Control (L.C.) Format Text

Answers Evaluated N.A.

Branching [Graphic (Music) underlay], mainmenu

Colors: Red, white, blue, + black



AMERICAN

ANTIQUE

CHAIRS

created by Maha See

with Summit Authoring System

Copyright Maha See March 1990

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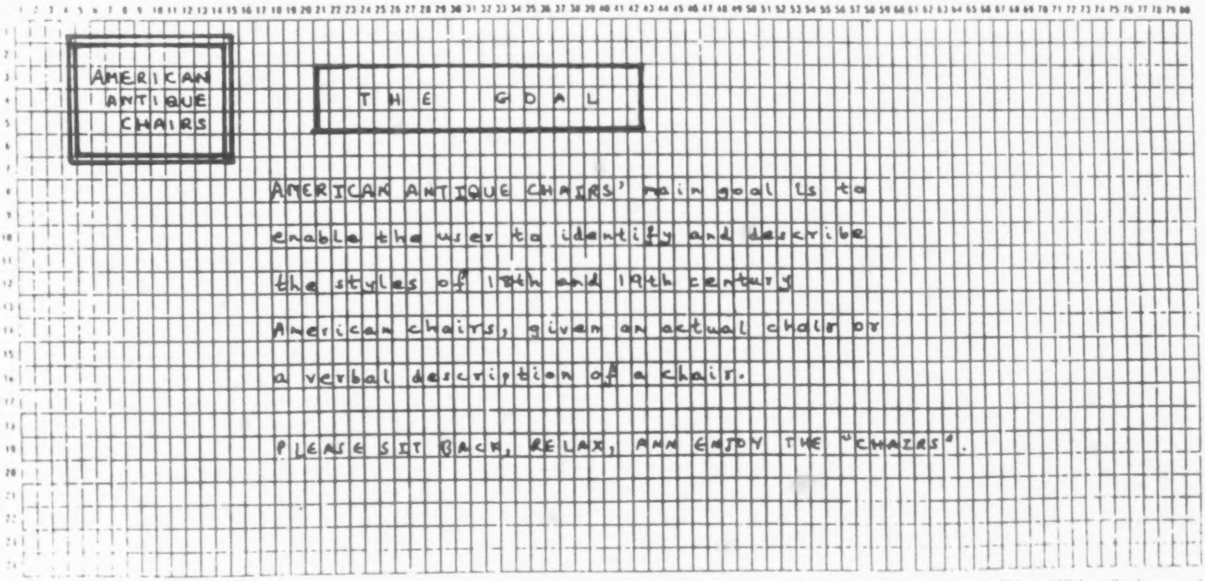
Screen Name goal Section 1 Screen Type Info. presentation Lesson Goal

✓ Include in Reporting Border Color Dark Blue Display Speed L.C. Format Text [✓ Color] No Color

Answers Evaluated N.A.

Branching Mainmenu



THE GOAL

AMERICAN ANTIQUE CHAIRS' main goal is to enable the user to identify and describe the styles of 18th and 19th century American chairs, given an actual chair or a verbal description of a chair.

PLEASE SIT BACK, RELAX, ANN ENJOY THE "CHAIRS".

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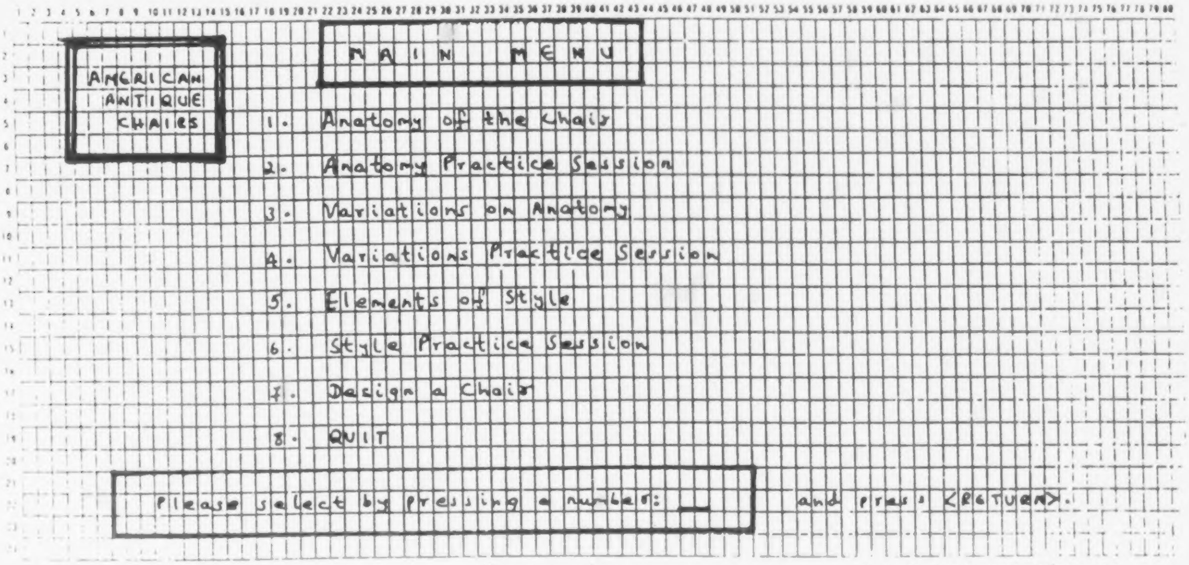
Screen Name Mainmenu Section 1 Screen Type User input (U.I.) Lesson N.A.

✓ Include in Reporting Border Color Red Display Speed L.C. Format Text [✓ Color] No Color

Answers Evaluated Branch according to user choice/selection.

Branching To sections specified on screen.



AMERICAN
ANTIQUE
CHAIRS

MAIN MENU

1. Anatomy of the Chair
2. Anatomy Practice Session
3. Variations on Anatomy
4. Variations Practice Session
5. Elements of Style
6. Style Practice Session
7. Design a Chair
8. QUIT

Please select by pressing a number: ___ and press <RETURN>.

There are two sub-menus in the same screen type and format.

VARIATIONS MENU

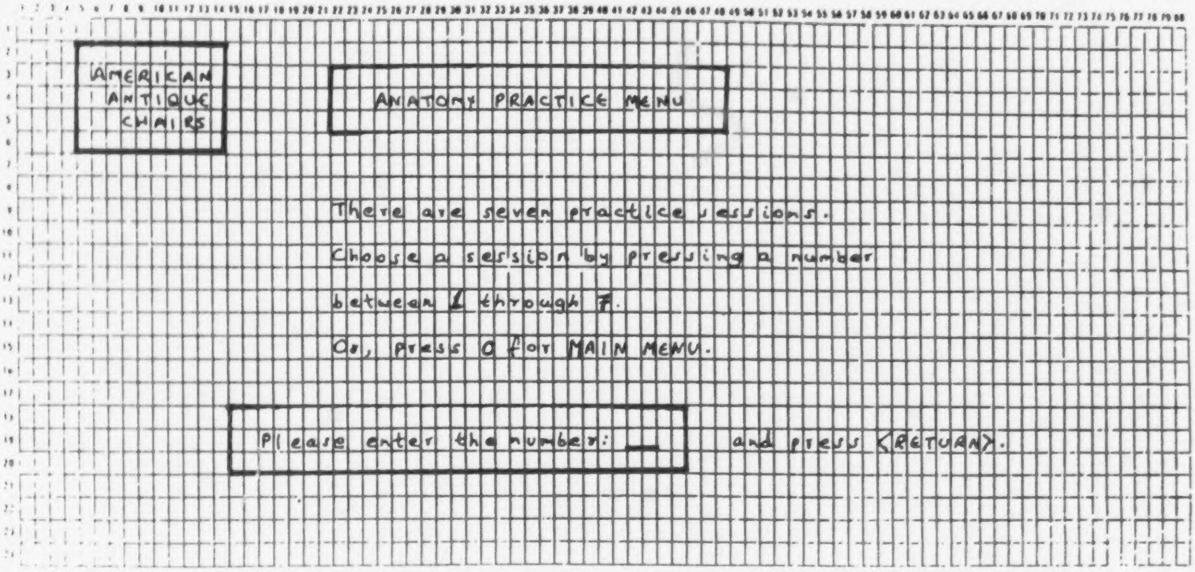
1. Backs
2. Seats
3. Legs/feet
0. Main Menu

STYLE MENU

1. The William and Mary Style
2. The Queen Anne Style
3. The Chippendale Style
4. The Windsor Style
5. The Hepplewhite Style
6. The Sheraton Style
0. Main Menu

Screen Name anat- Section pm Screen Type U.I. Lesson Anatomy
✓ Include in Reporting Border Color Red Display Speed L.C. Format Text [✓ Color]/No Color
Answers Evaluated Branch according to user selection.
Branching anat-p1 ... anat-p7

NOTE: "VARIATIONS" + "STYLE" PRACTICE + "DESIGN A CHAIR" MENU/are in the same format. They have 15 practice sessions each. Design has 7 sessions.



AMERIKAN ANTIQUE CHAIRS

ANATOMY PRACTICE MENU

There are seven practice sessions.

Choose a session by pressing a number

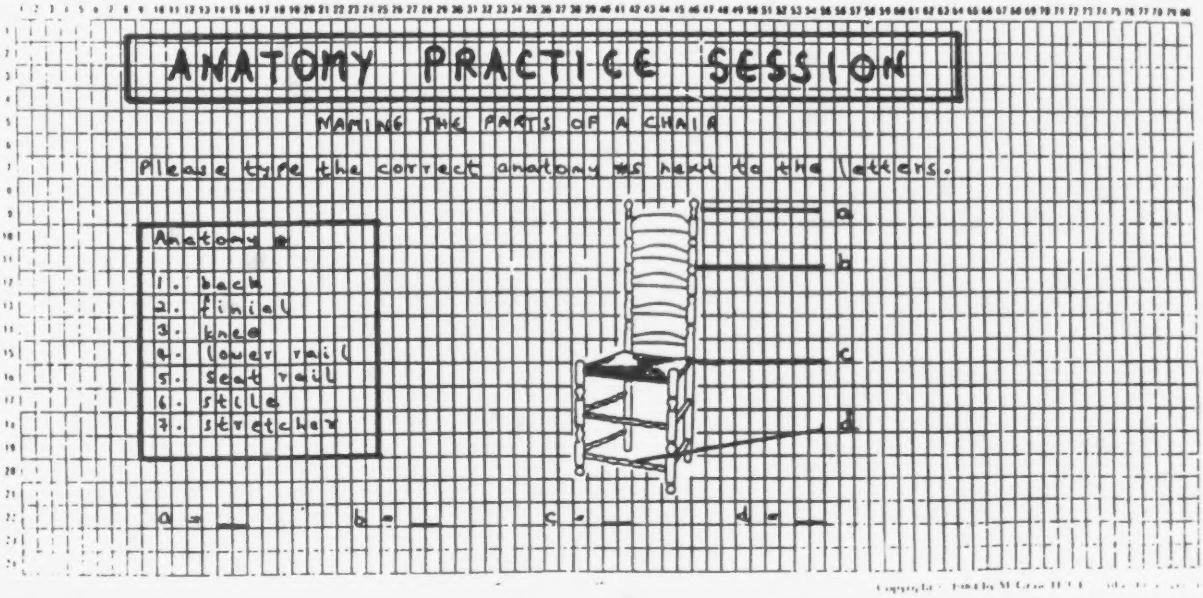
between 1 through 7.

Or, press 0 for MAIN MENU.

Please enter the number: __ and press <RETURN>.

Screen Name anat- Section p1 Screen Type U.I. Lesson Anatomy
✓ Include in Reporting Border Color – Display Speed L.C. Format Text [✓ Color]/No Color
Answers Evaluated "Beep" + "Incorrect" for wrong; cursor moves to next space if right.
Branching mainmenu

NOTE: anat-p2...-p7 follow the same format with different chair + anatomy #.



ANATOMY PRACTICE SESSION

NAMING THE PARTS OF A CHAIR

Please type the correct anatomy #s next to the letters.

Anatomy #

1. back
2. finial
3. knee
4. lower rail
5. seat rail
6. stile
7. stretcher

a = __ b = __ c = __ d = __

Screen Name anat Section 0 Screen Type I.P. Lesson Anatomy
✓ Include in Reporting Border Color Dark Blue Display Speed L.C. Format Text [✓ Color] No Color
Answers Evaluated N.A.
Branching anatback

NOTE: "THE OBJECTIVE" screens for Variations + Design + Styles are in the same format.

AMERICAN
ANTIQUE
CHAIRS

THE OBJECTIVE

The objective of ANATOMY OF THE CHAIR
is to enable you to recognize the
names of the parts of a chair.

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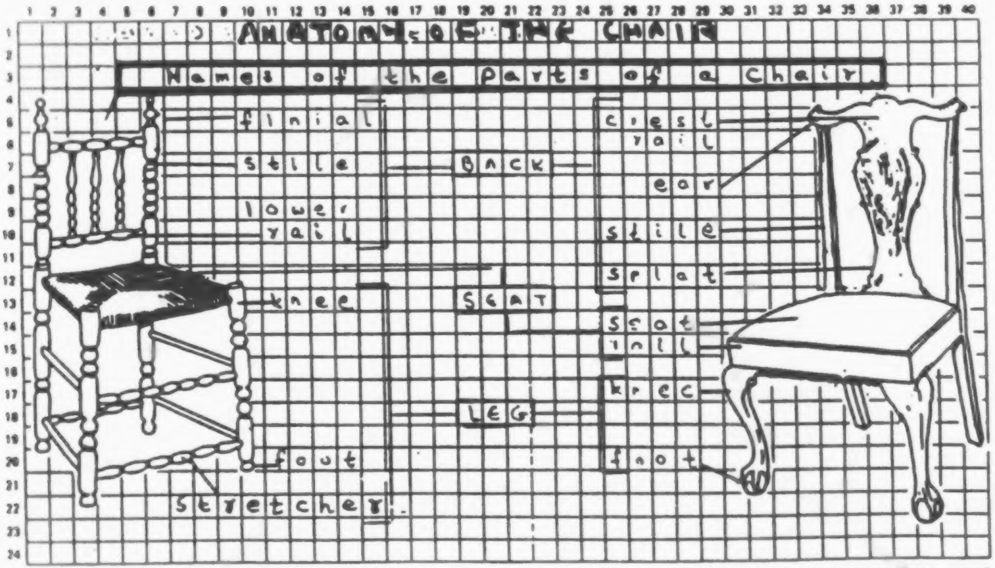
Screen Name anatomy Section ___ Screen Type I.P. Lesson Anatomy
☑ Include in Reporting Border Color – Display Speed L.C. Format Text
Answers Evaluated N.A.
Branching [Graphic underlay], mainmenu

NOTE: Preceded by anatback, anatseat, anatlegs.



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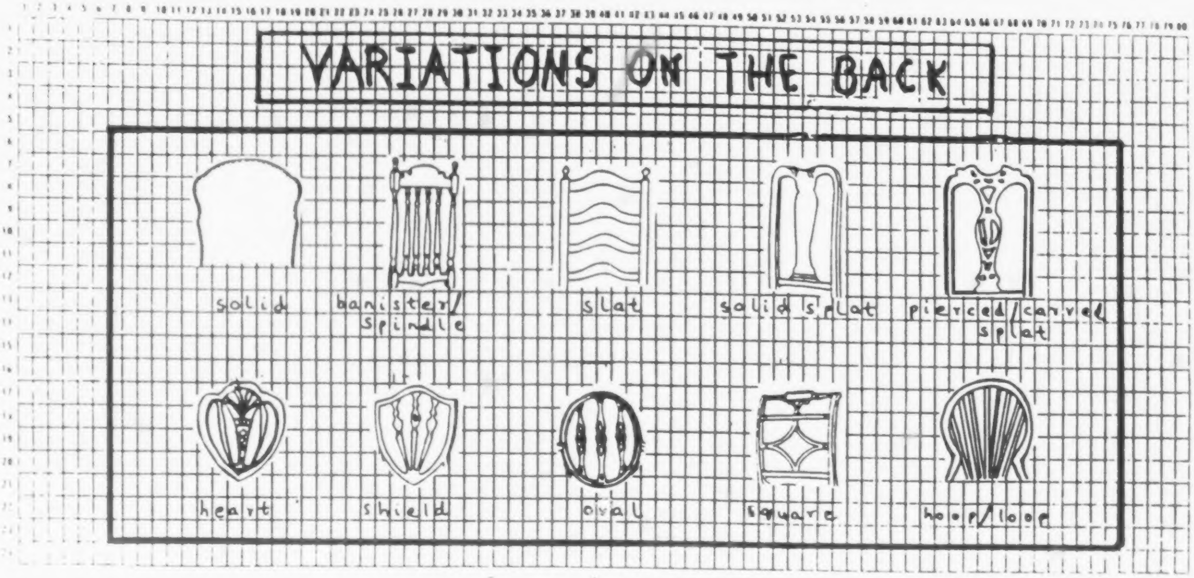
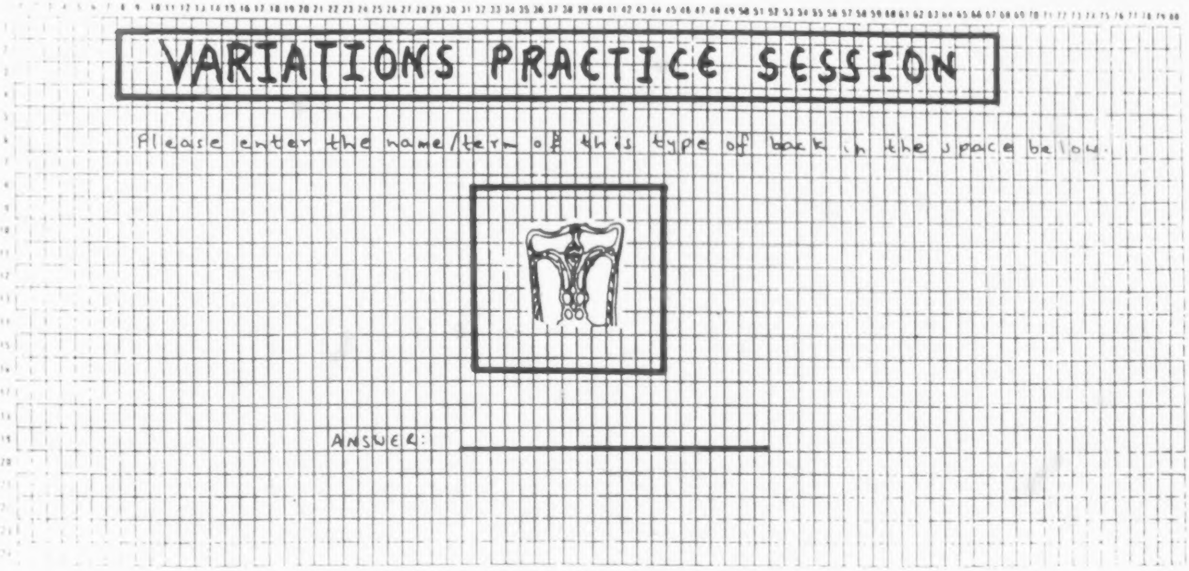
Screen Name varibaek Section ____ Screen Type I. P. Lesson Back
✓ Include in Reporting Border Color — Display Speed L. C. Format Graphic [✓ Color] No Color
Answers Evaluated N. A.
Branching varimenu
NOTE: VARIATIONS ON THE SEAT and VARIATIONS ON THE LEGS/FEET follow the same screen type and format.


VARIATIONS ON THE BACK

Screen Name Vari-p1 Section ____ Screen Type U. I. Lesson Variations
✓ Include in Reporting Border Color — Display Speed L. C. Format Graphic [✓ Color] No Color
Answers Evaluated "Beep" + "INCORRECT" if wrong; "CORRECT" + "EXCELLENT" if right.
Branching varimenu


VARIATIONS PRACTICE SESSION

Please enter the name/term of this type of back in the space below.

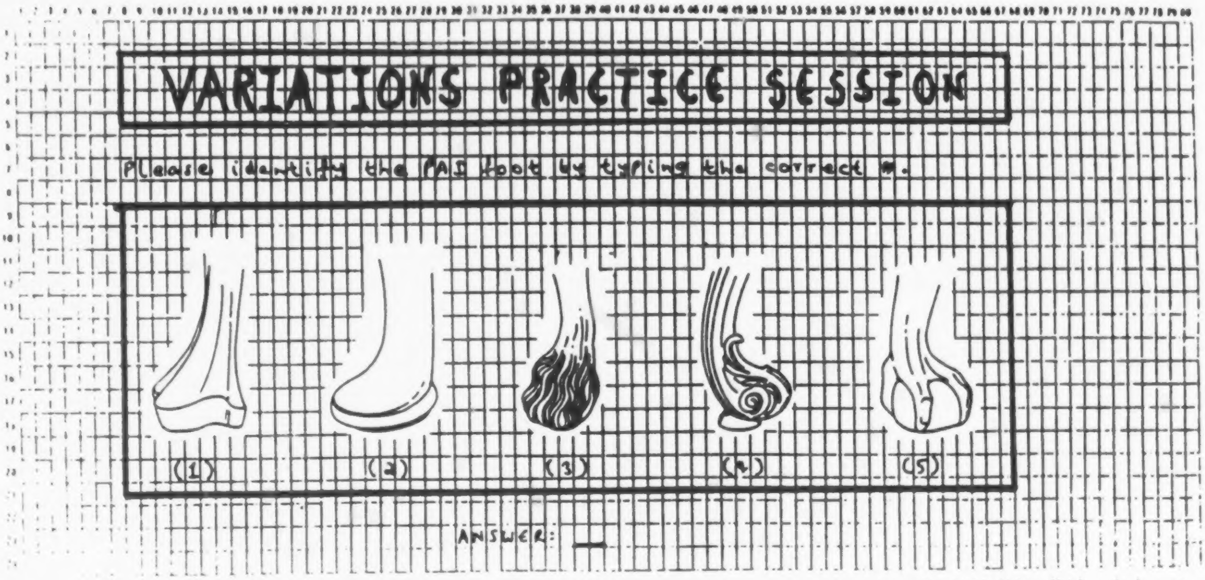
ANSWER: ________________

Screen Name vari-p2 Section __ Screen Type U.I. Lesson Variations

✓ Include in Reporting Border Color – Display Speed L.C. Format Graphic [✓ Color] No Color

Answers Evaluated (same as vari-p1)

Branching Varimenu



VARIATIONS PRACTICE SESSION

Please identify the PAD foot by typing the correct #.

ANSWER: __

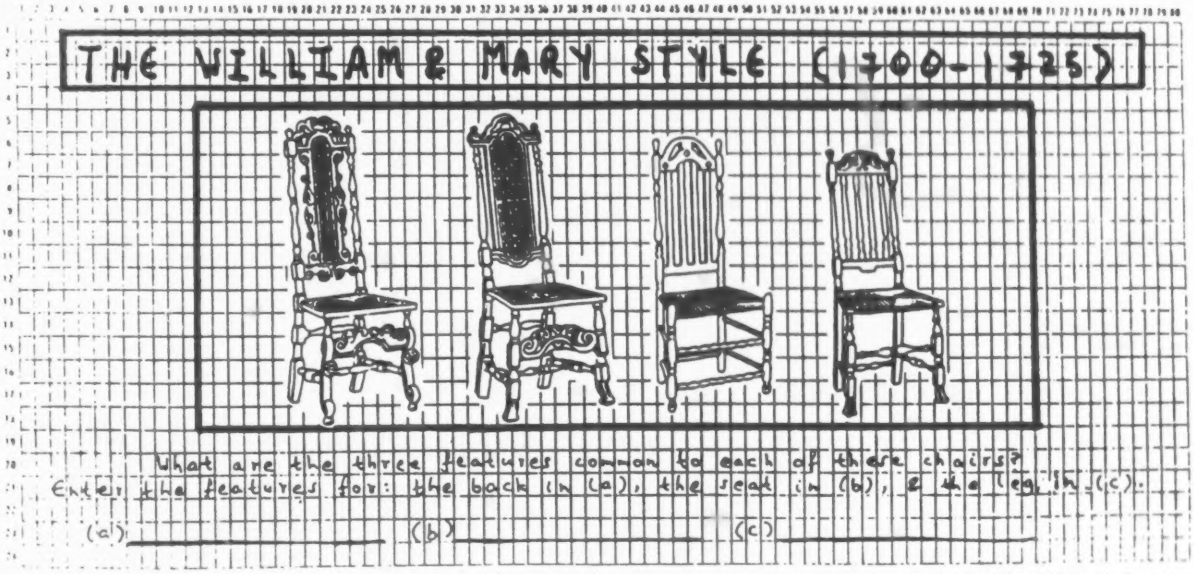
Screen Name stylwill Section __ Screen Type I.P. + U.I. Lesson Styles

✓ Include in Reporting Border Color – Display Speed L.C. Format Graphic [✓ Color] No Color

Answers Evaluated Beep + "INCORRECT" if wrong"; "CORRECT" if right.

Branching stylwils (William + Mary Style Summary screen).

NOTE: Five other STLYE screens follow the same format.



THE WILLIAM & MARY STYLE (1700-1725)

What are the three features common to each of these chairs?
Enter the features for: the back in (a), the seat in (b), & the leg in (c).

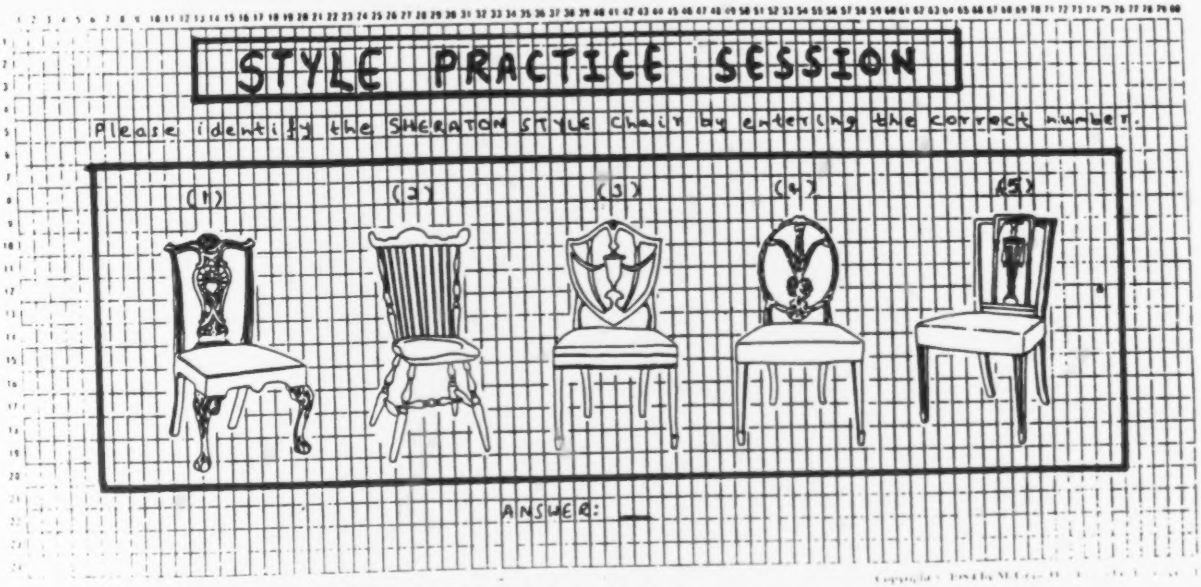
(a) __________ (b) __________ (c) __________

Screen Name styl-p1 Section ___ Screen Type U.I. Lesson Style

✓ Include in Reporting Border Color – Display Speed L.C. Format ___ [✓ Color] No Color

Answers Evaluated "Beep" + "INCORRECT" if wrong; "CORRECT" + "EXCELLENT" if right

Branching stylmenu



STYLE PRACTICE SESSION

Please identify the SHERATON STYLE chair by entering the correct number.

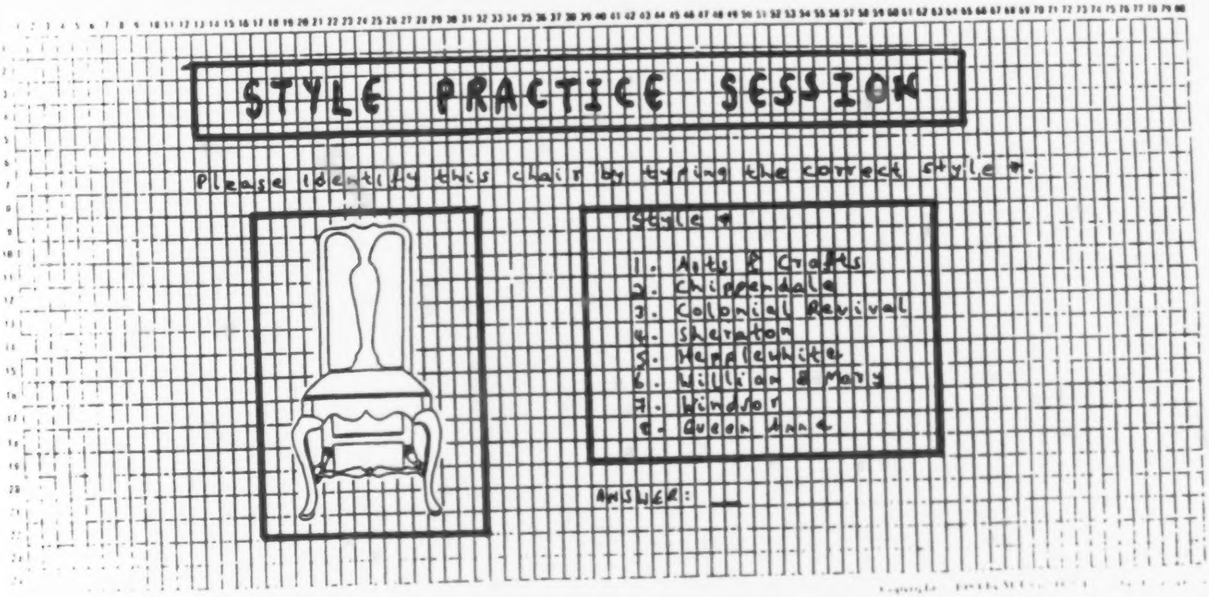
ANSWER: _

Screen Name styl-p2 Section ___ Screen Type U.I. Lesson ___

✓ Include in Reporting Border Color ___ Display Speed L.C. Format ___ Color/No Color

Answers Evaluated (same as in styl-p2)

Branching stylmenu



STYLE PRACTICE SESSION

Please identify this chair by typing the correct style #.

Style #

1. Arts & Crafts
2. Chippendale
3. Colonial Revival
4. Sheraton
5. Hepplewhite
6. William & Mary
7. Windsor
8. Queen Anne

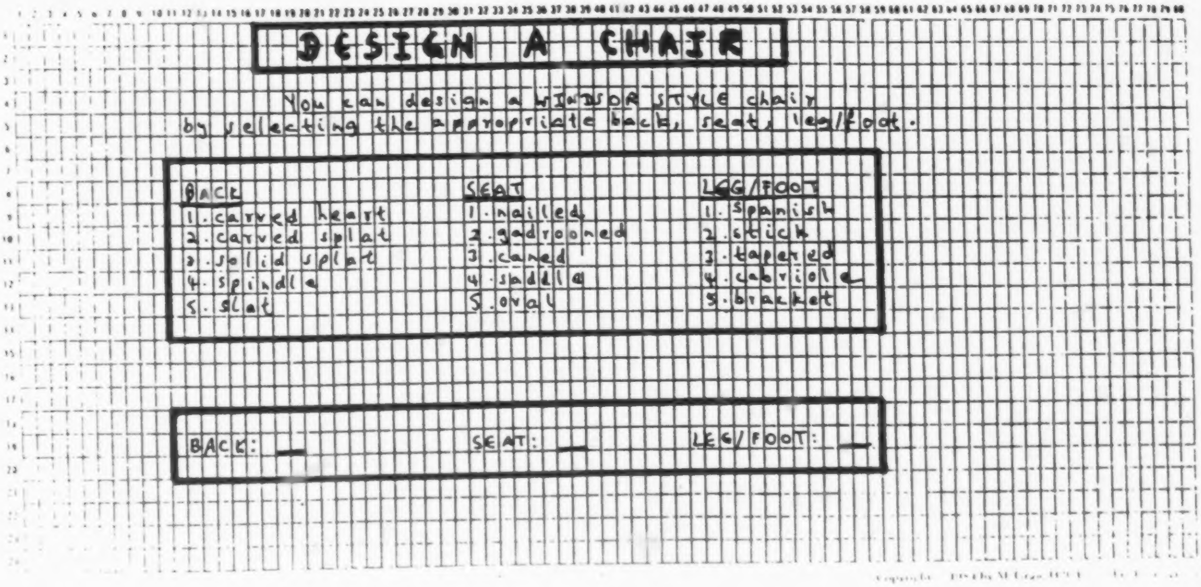
ANSWER: _

Screen Name desi-p1 Section — Screen Type U. I. Lesson

✓ Include in Reporting Border Color Dark Blue Display Speed Format Text [✓ Color] No Color

Answers Evaluated "Deep" + red blink if choice is inappropriate; green blink if appropriate.

Branching desi-s1.



DESIGN A CHAIR

You can design a WINDSOR STYLE chair
by selecting the appropriate back, seat, leg/foot.

BACK	SEAT	LEG/FOOT
1. carved heart	1. nailed	1. spanish
2. carved splat	2. gadrooned	2. stick
3. solid splat	3. caned	3. tapered
4. spindle	4. saddle	4. cabriole
5. slat	5. oval	5. bracket

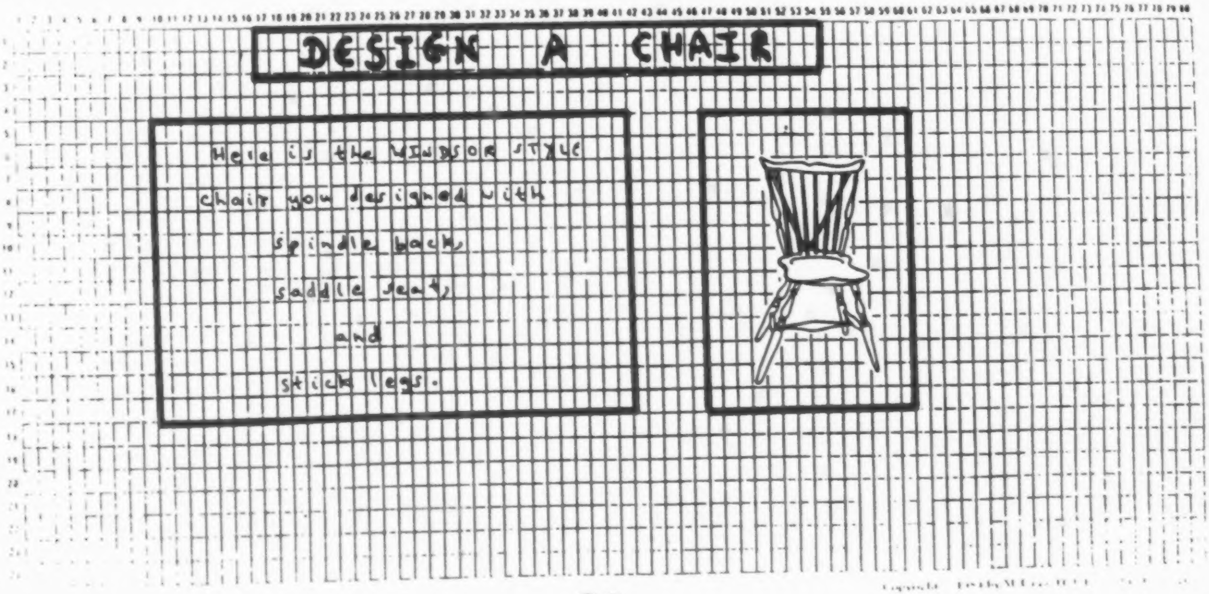
BACK: — SEAT: — LEG/FOOT: —

Screen Name desi-s1 Section — Screen Type I.P. Lesson

✓ Include in Reporting Border Color — Display Speed Format Graphic [✓ Color] No Color

Answers Evaluated —

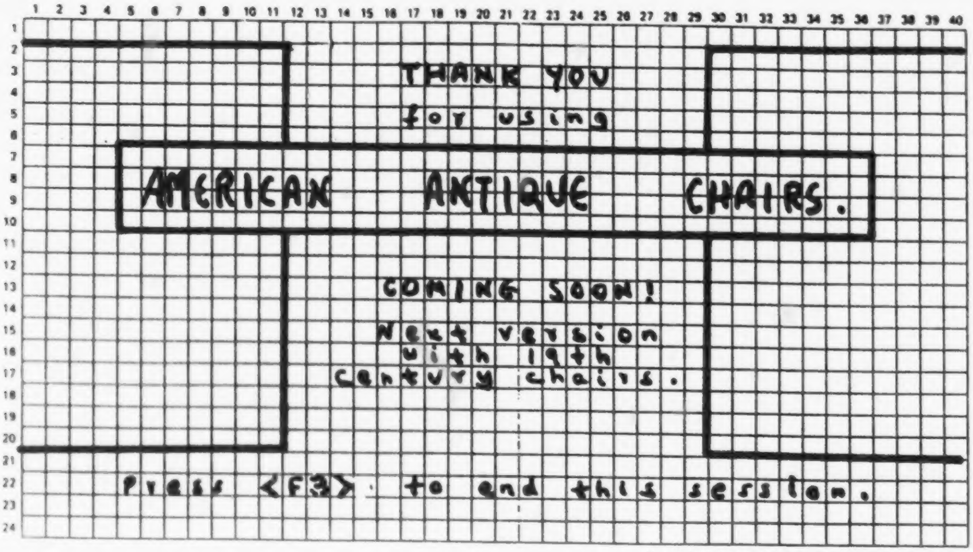
Branching desi-pm (Design Menu.)



DESIGN A CHAIR

Here is the WINDSOR STYLE
chair you designed with
spindle back,
saddle seat,
and
stick legs.

Screen Name QUIT Section ____ Screen Type I. P. Lesson N. A.
☑ Include in Reporting Border Color — Display Speed L. C. Format Text
Answers Evaluated N. A.
Branching DOS



THANK YOU
for using
AMERICAN ANTIQUE CHAIRS.
COMING SOON!
Next version
with 19th
century chairs.

Press <F3> to end this session.

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NOTES ON THE SCREENS

FOREGROUND COLOR: - black on graphic screens.
- black, white, red, & blue on text screens.

BACKGROUND COLOR: cyan

DISPLAY SPEED: learner controlled (LC). The next screen will not appear unless the user press <F3>.

CURSOR ON SCREENS: blinking cursor is used in all screens that require user input.

APPENDIX H

SIMULATION EXERCISE

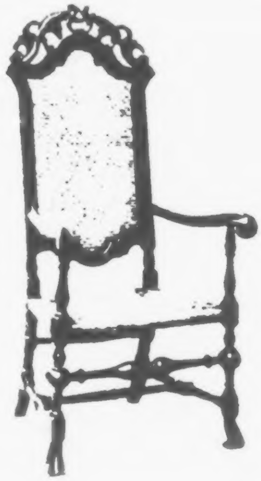
SIMULATION EXERCISE

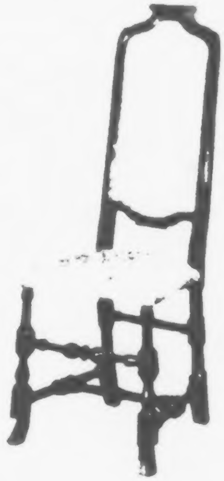
In learning activity scheme, this simulation exercise occurs after the CBT operation. It will be conducted one-on-one with the designer. The perfect score for the simulation is twenty-five points.

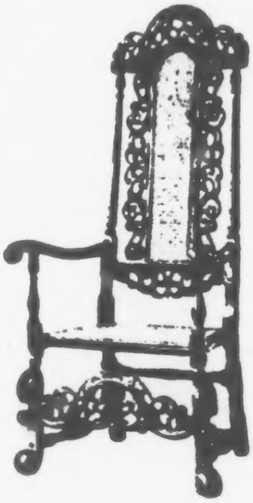
The simulation exercise is in two parts. The first part uses twenty copies of chair photographs (Miller, 1966). The test administrator (customer) shows the pictures to the learner (antique dealer) to tell him the styles of each chair shown. Five of them are not 18th century American chairs which are included as noise. The learner is also asked to identify the names of the different types of backs, seats, and legs/foot. The perfect score for this part is fifteen points.

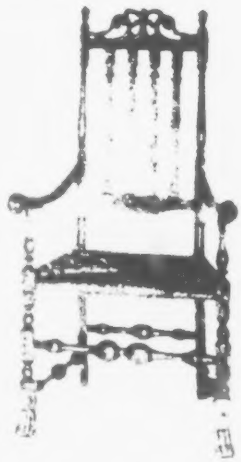
In the second part, the learner (antique dealer) is in "an estate" looking at different furniture. The learner will be looking at ten pictures (Davidson & Stillinger, 1985; Williams & Williams, 1966) of rooms and will be asked to identify and describe the styles of American antique chairs "over the phone" to the "customer". The perfect score for this part is ten points.

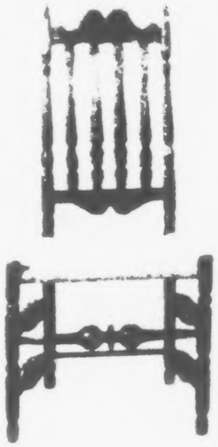
THE WILLIAM & MARY STYLE

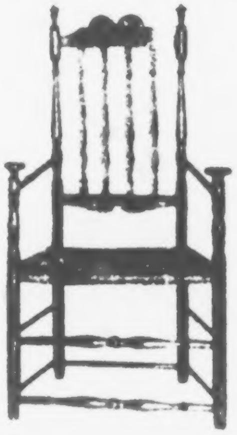


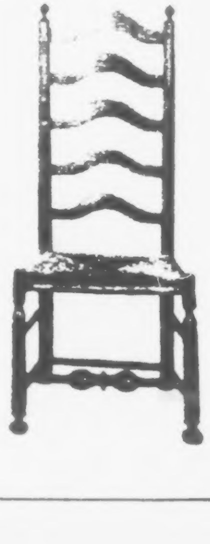


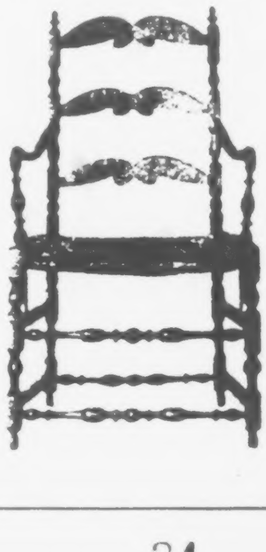


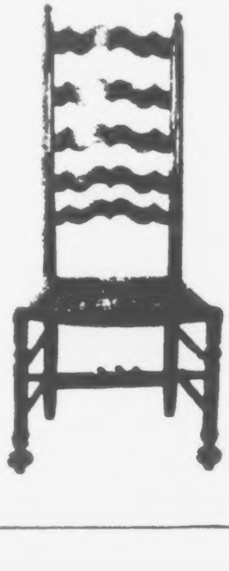




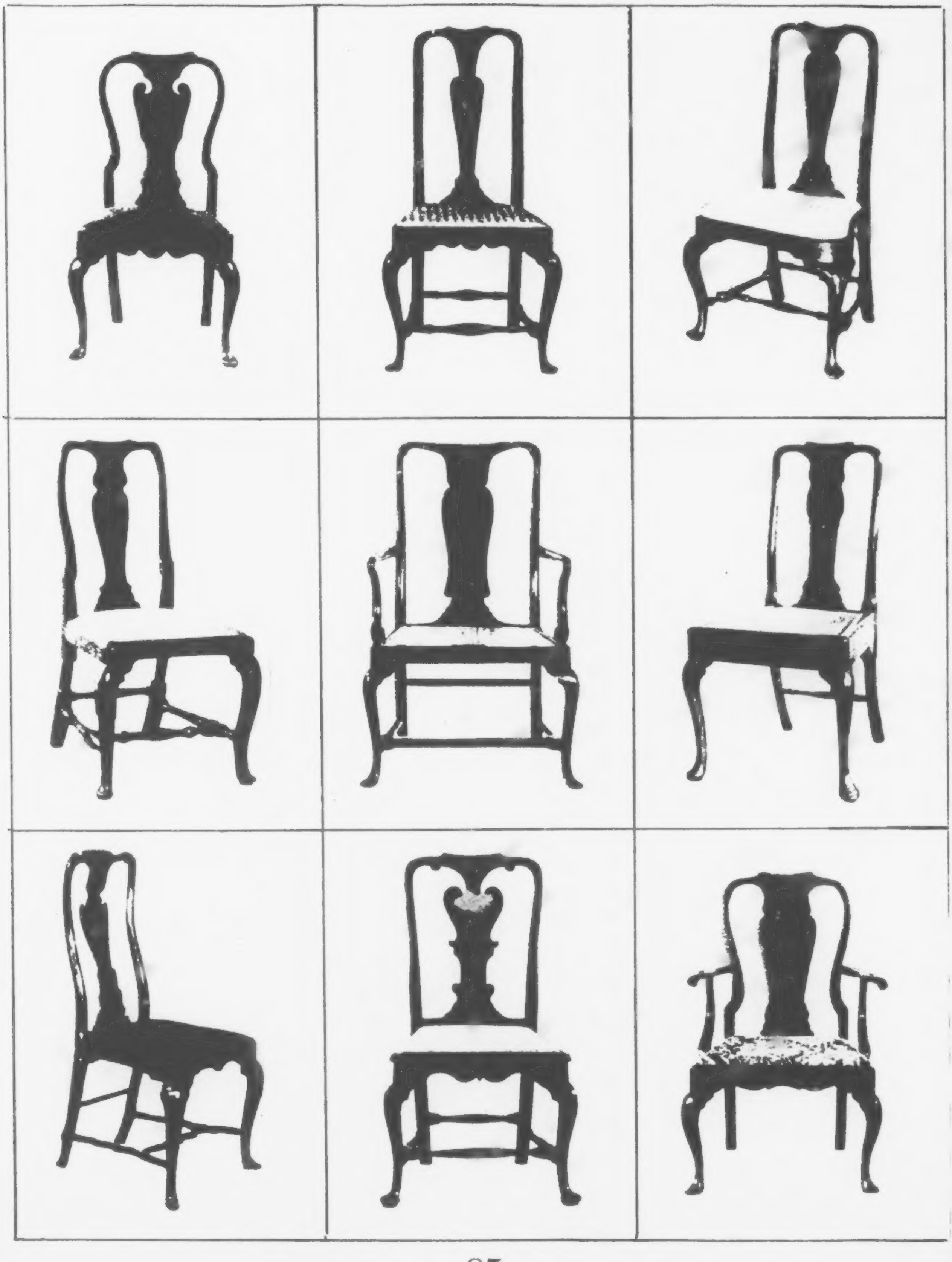




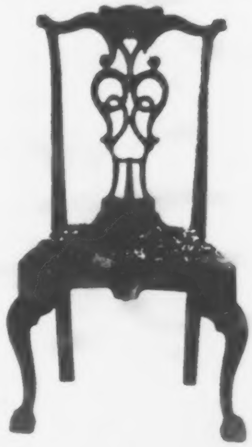


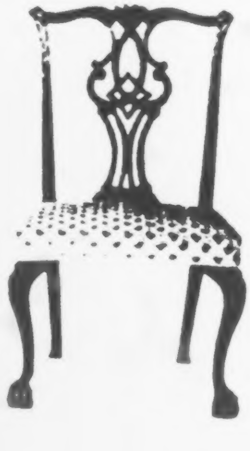


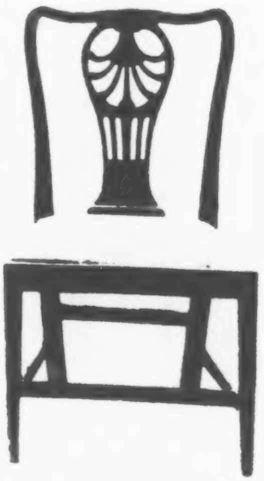
THE QUEEN ANNE STYLE

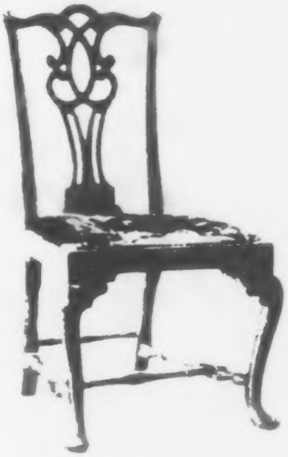


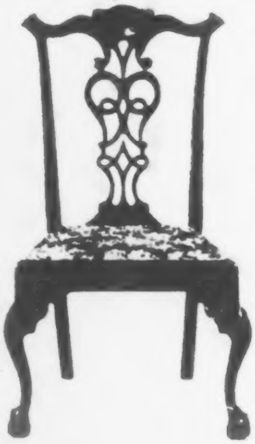
THE CHIPPENDALE STYLE

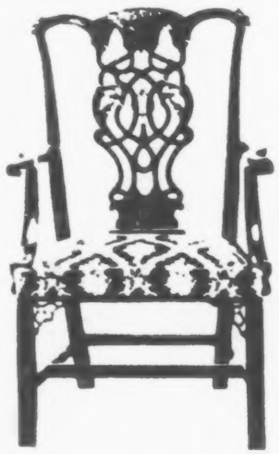


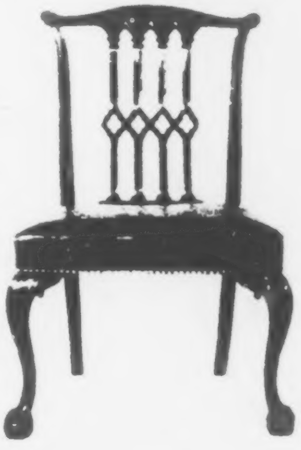


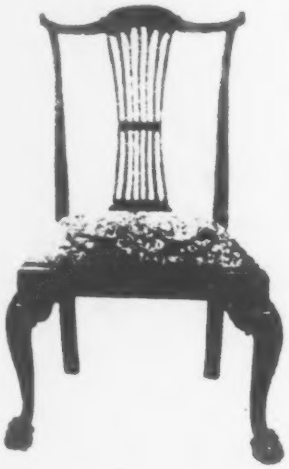


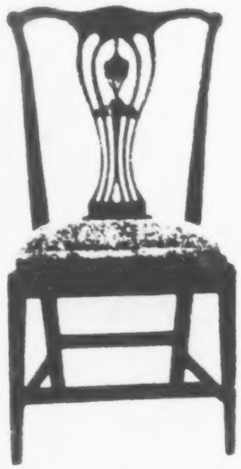




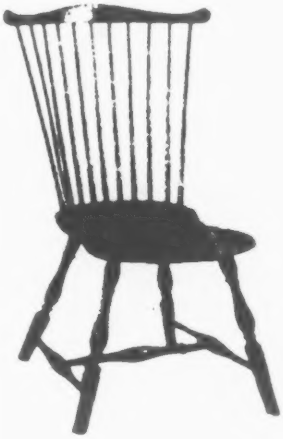


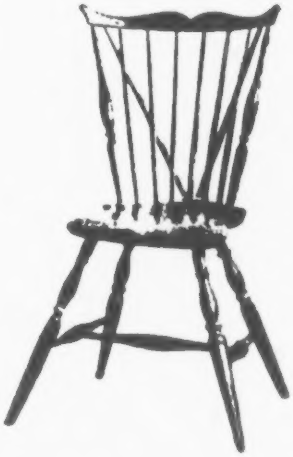


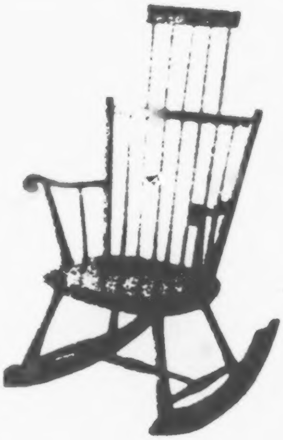


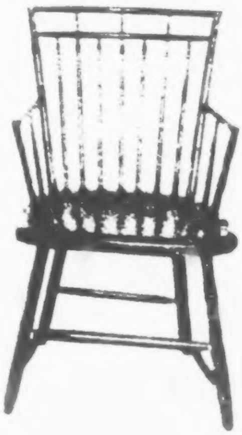


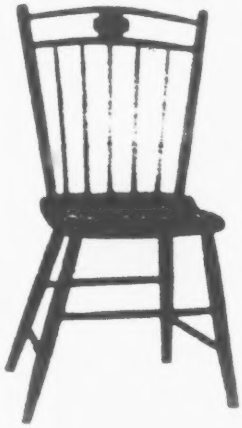
THE WINDSOR STYLE

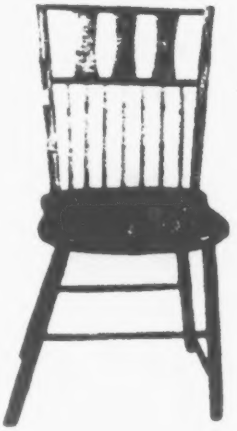


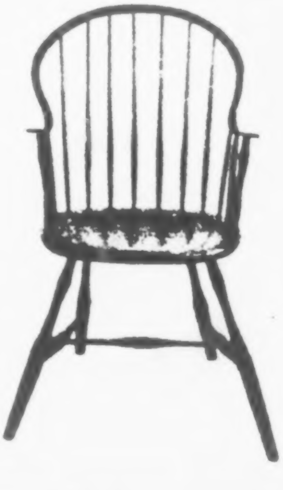


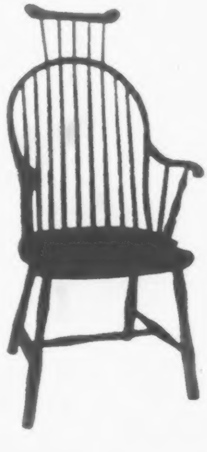


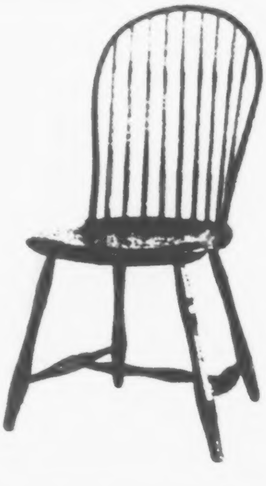




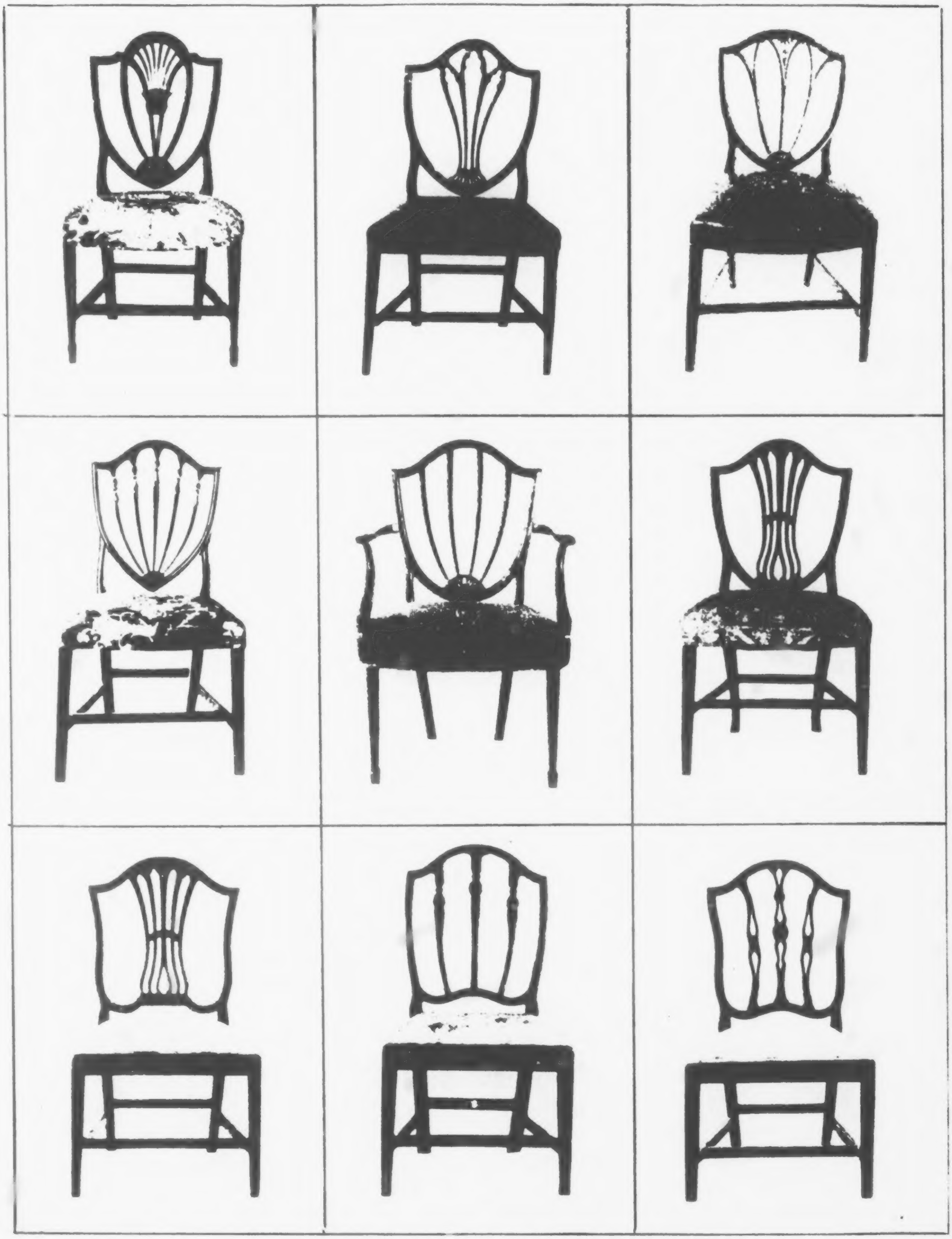




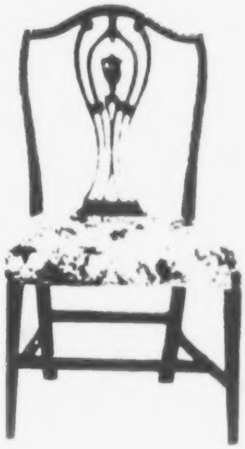


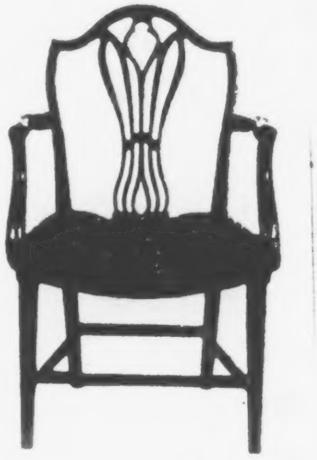


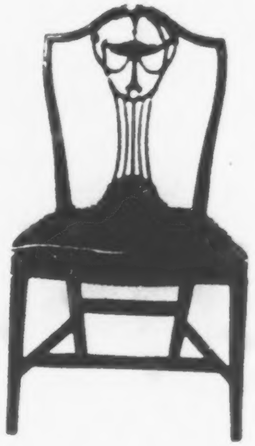
THE HEPPLEWHITE STYLE I

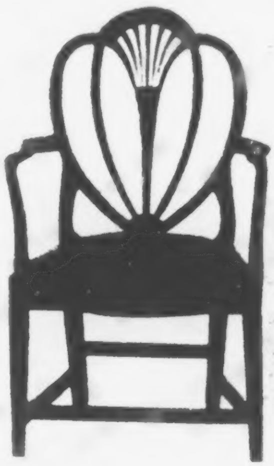


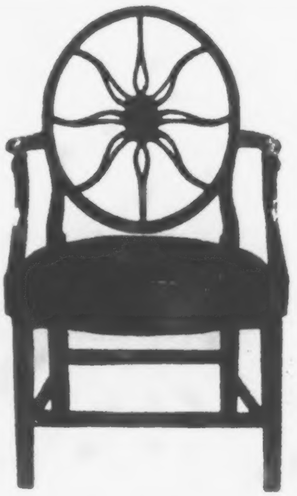
THE HEPPLEWHITE STYLE II

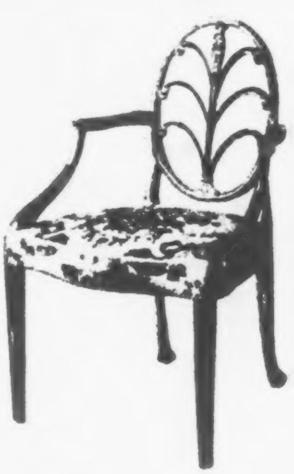


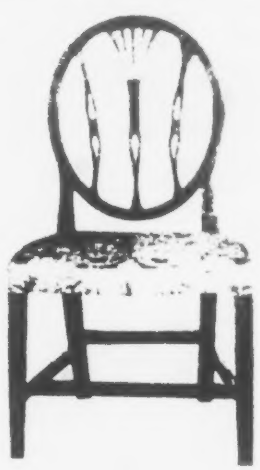


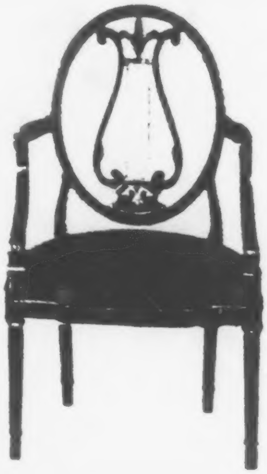


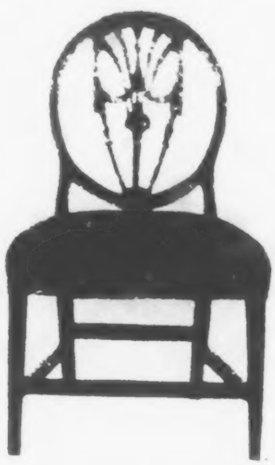




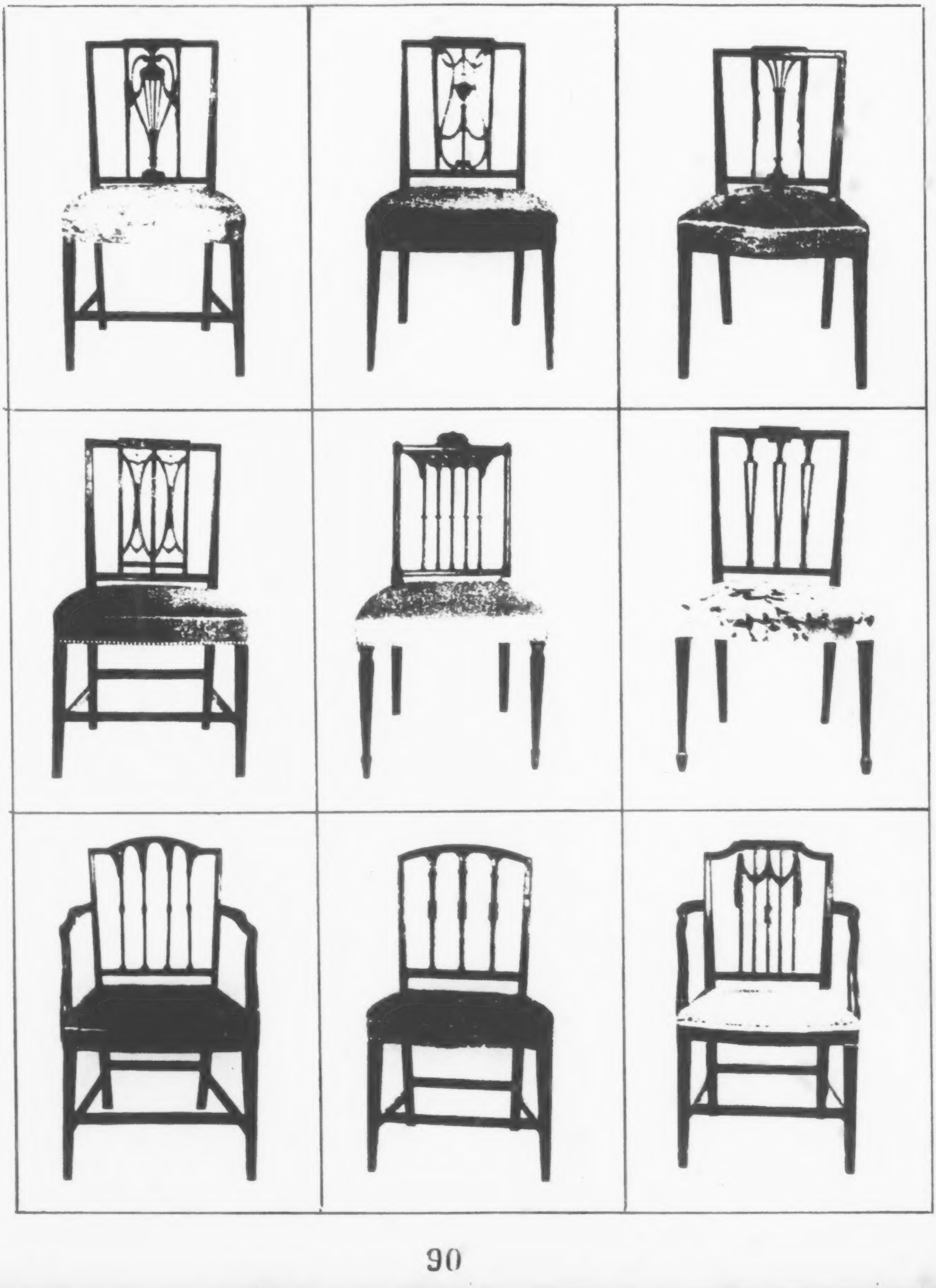








THE SHERATON STYLE



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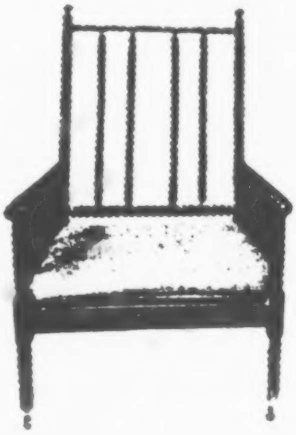

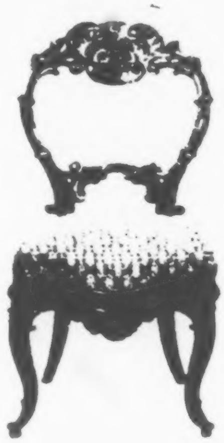

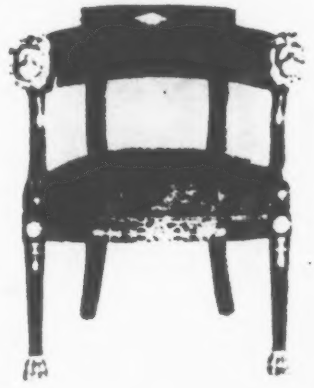

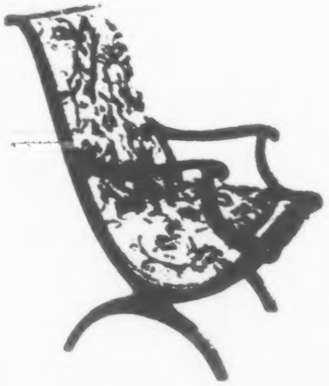

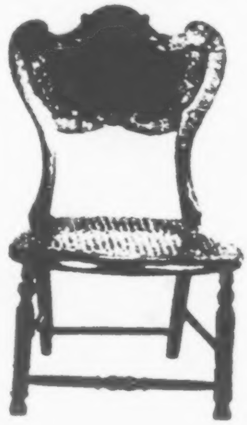

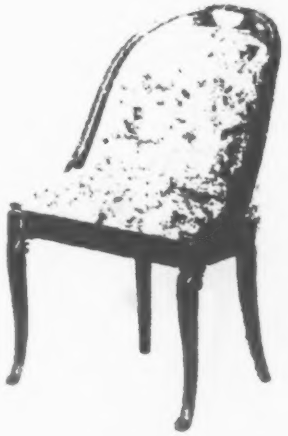

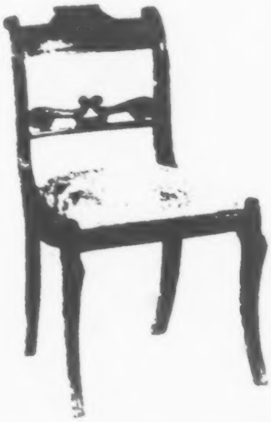

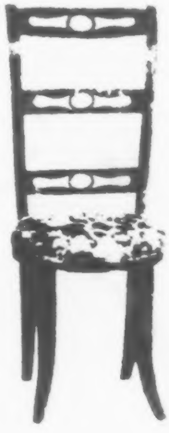

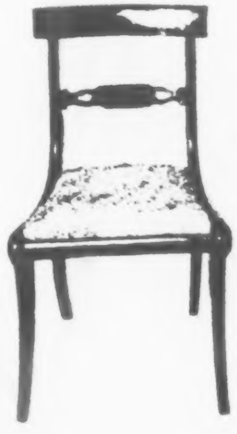

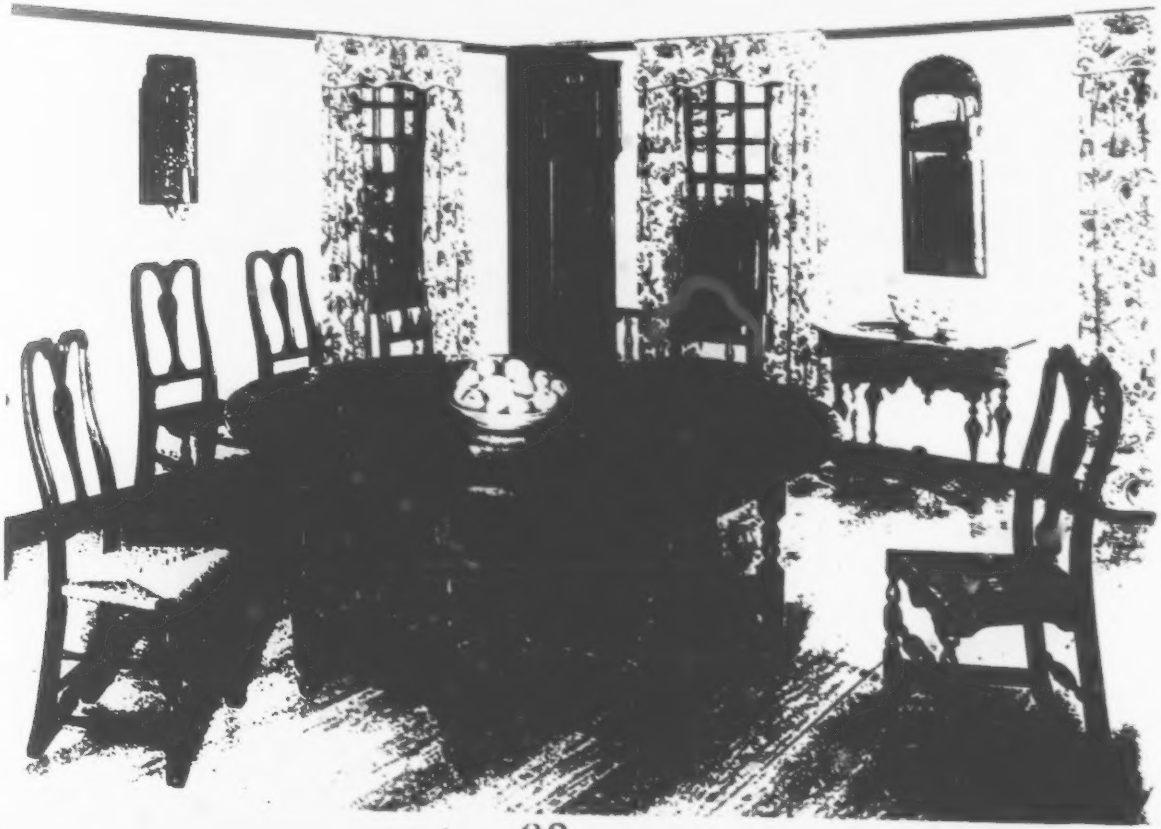

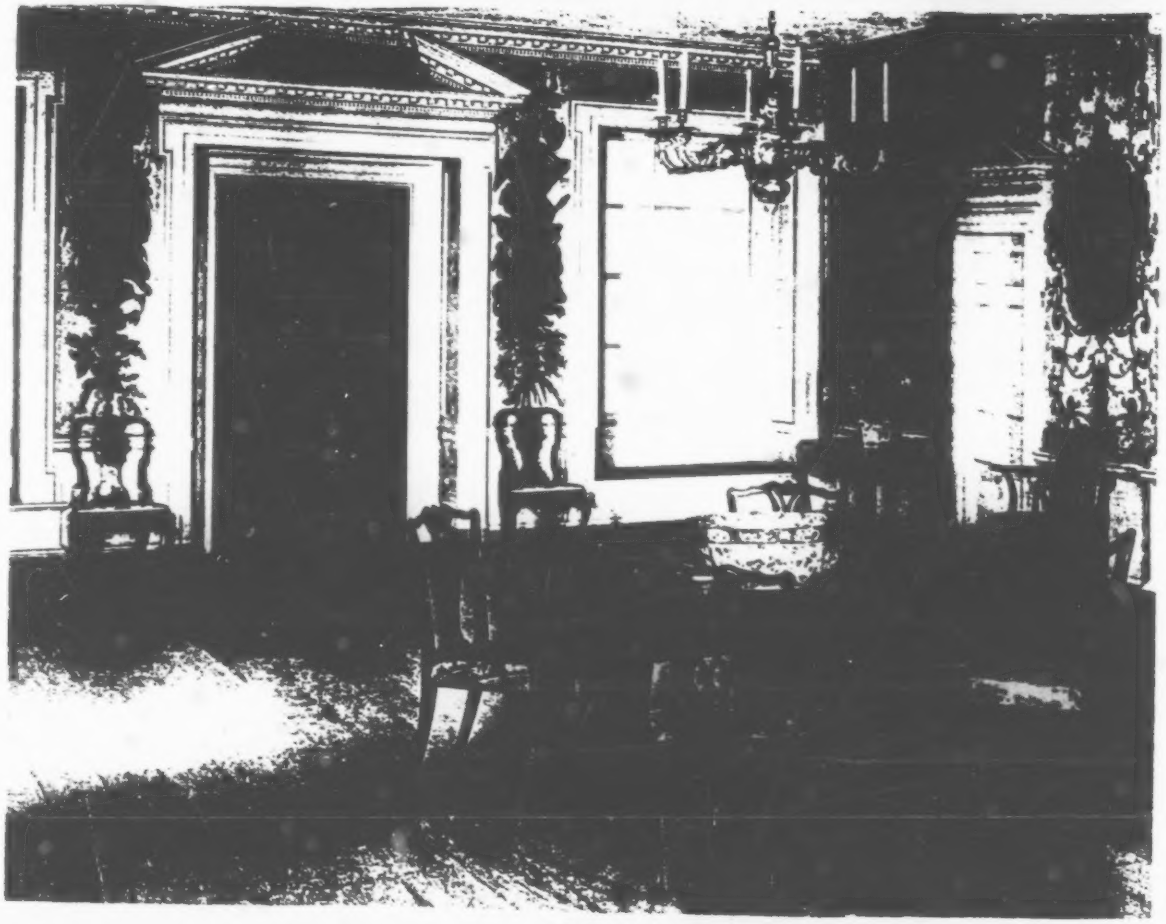

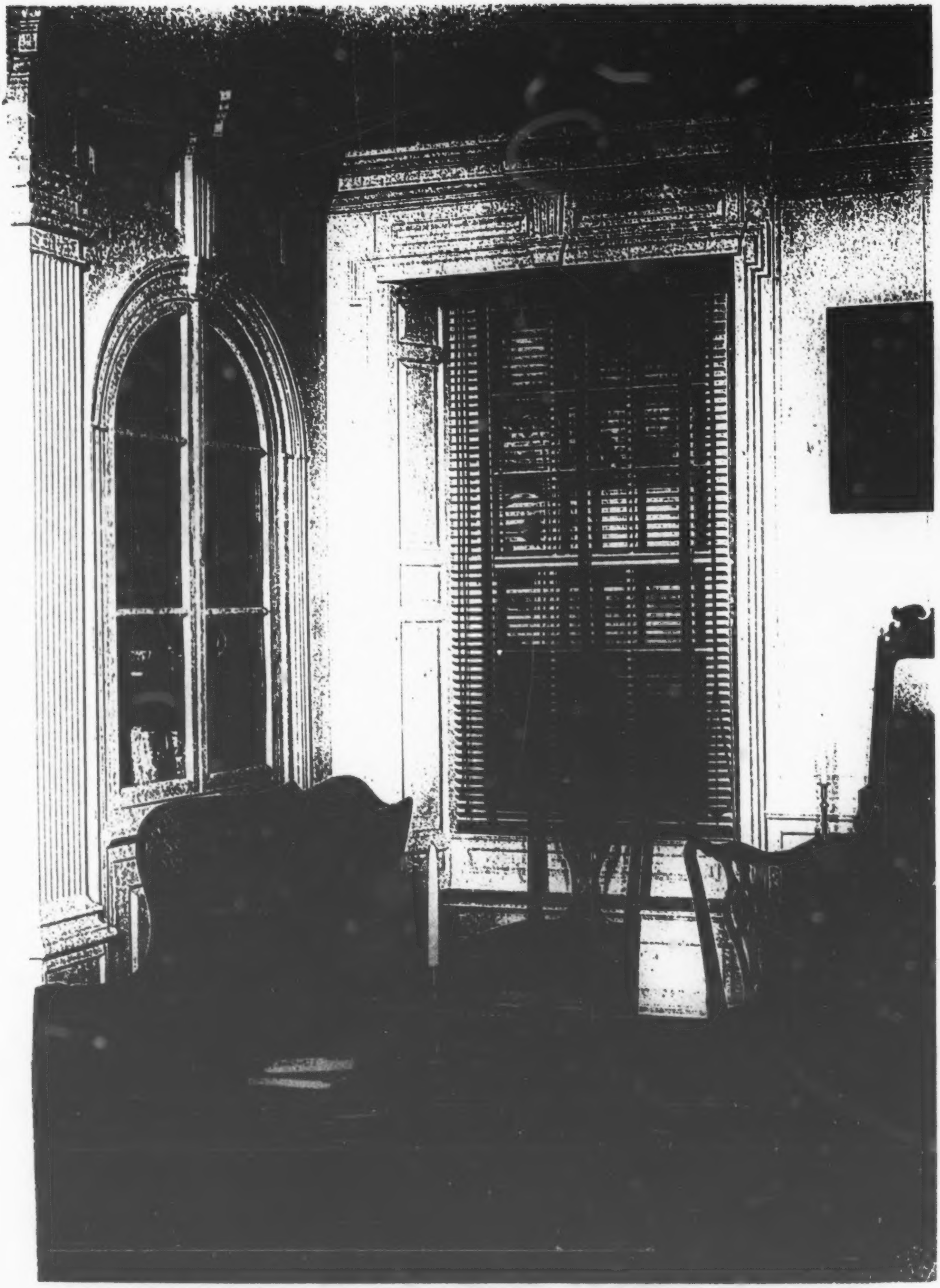

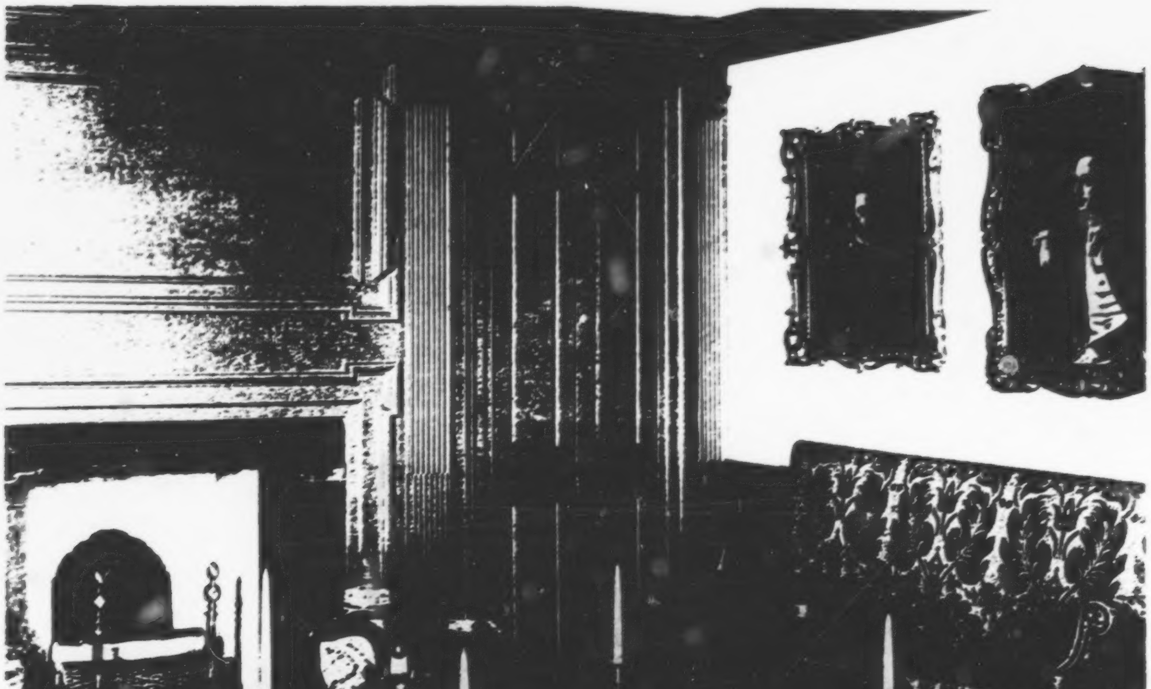

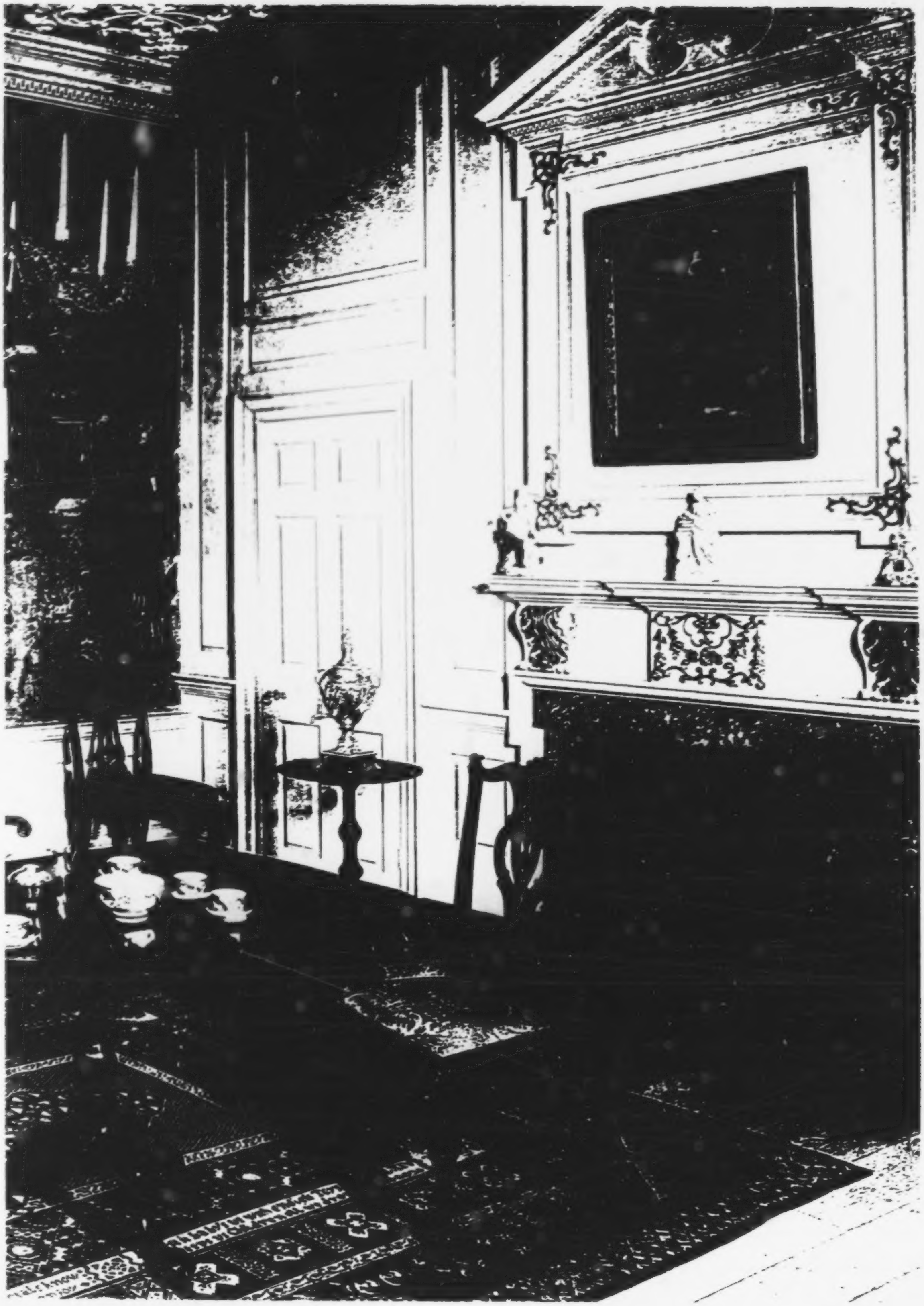

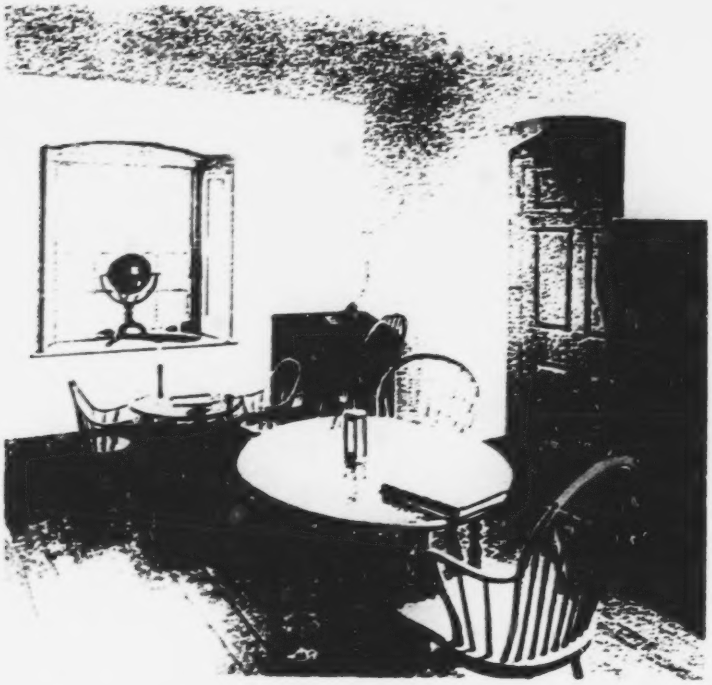

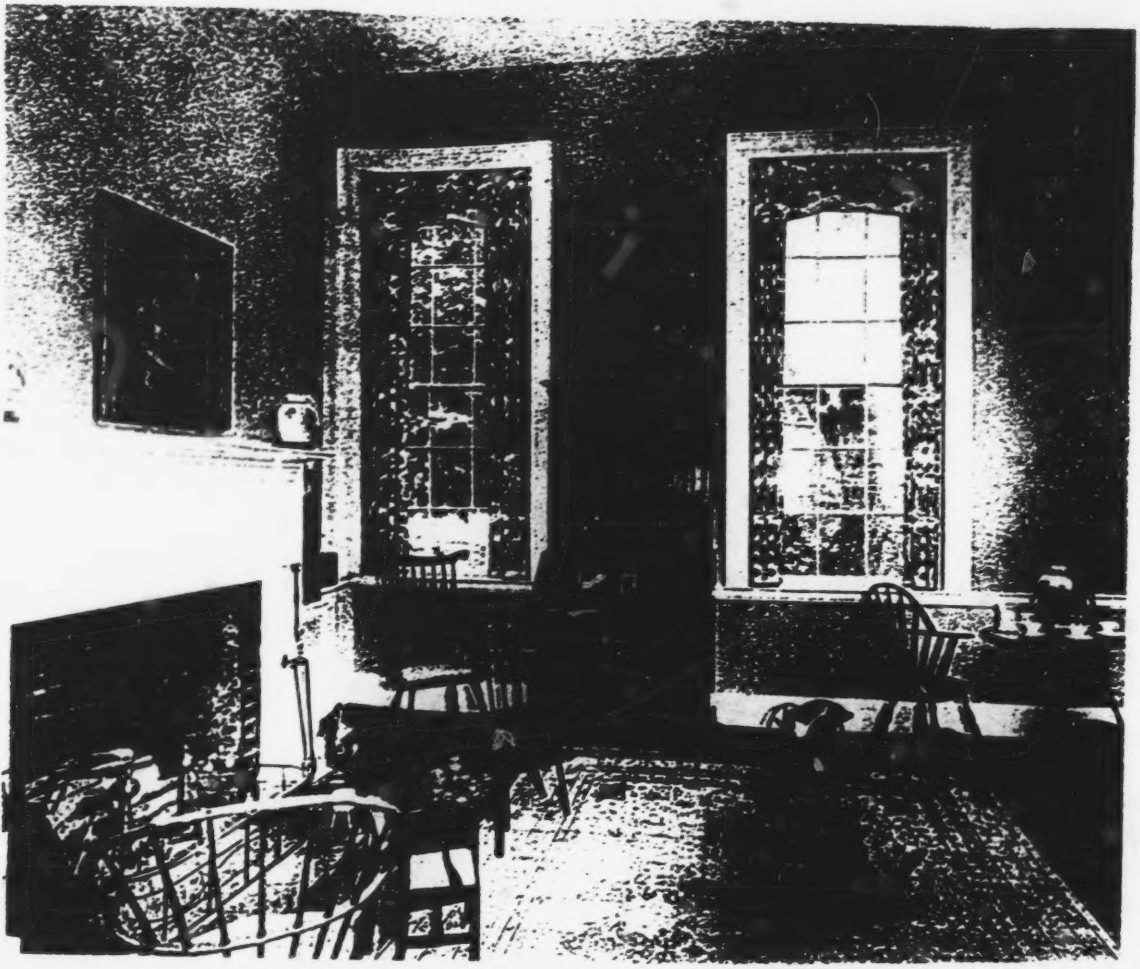

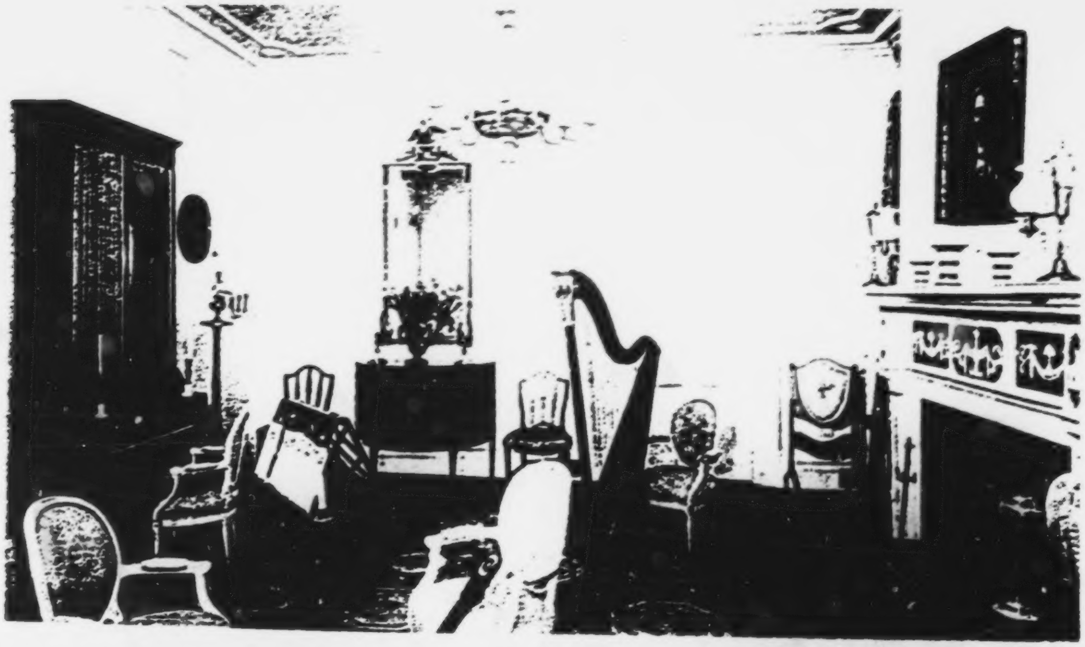

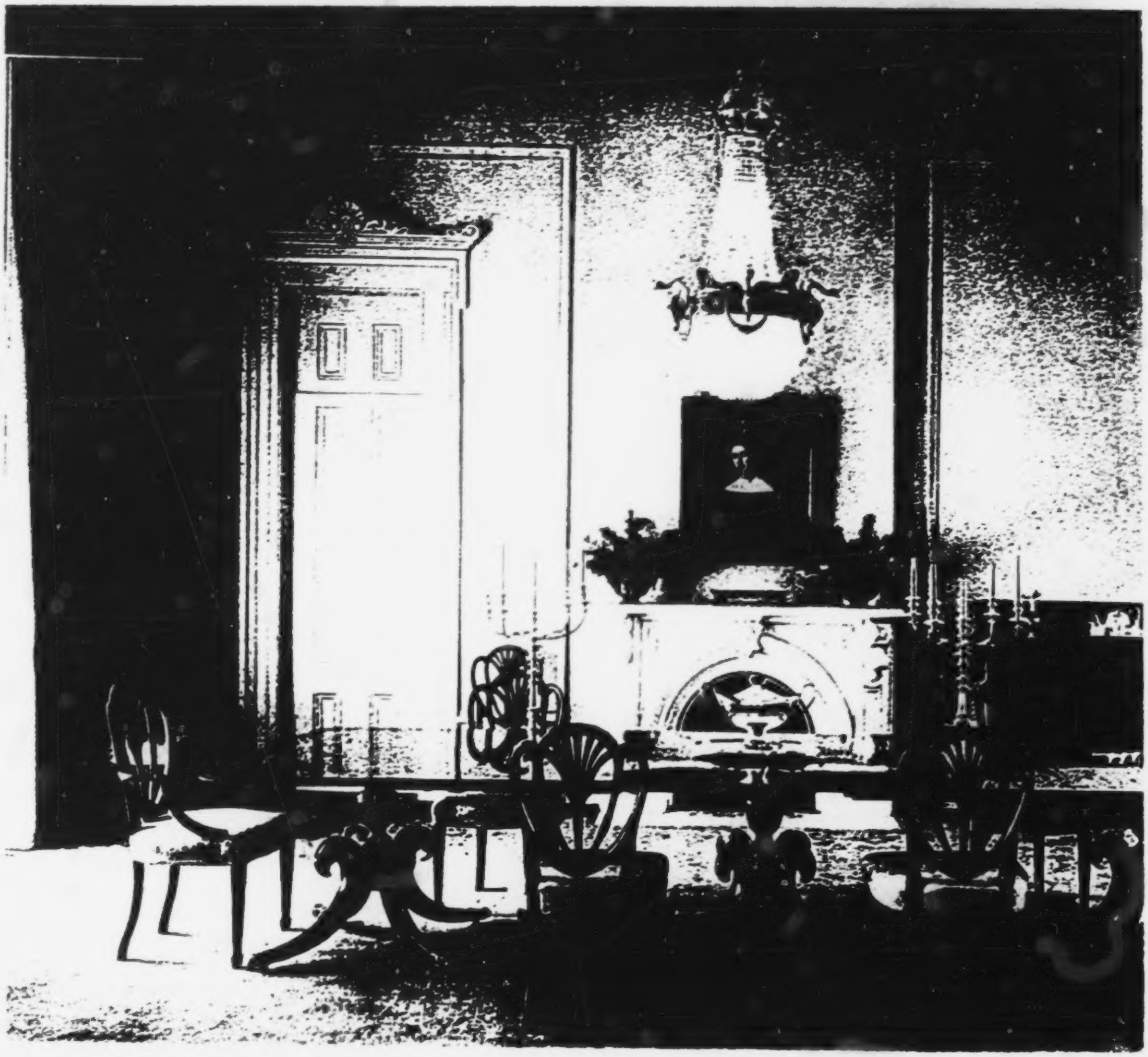

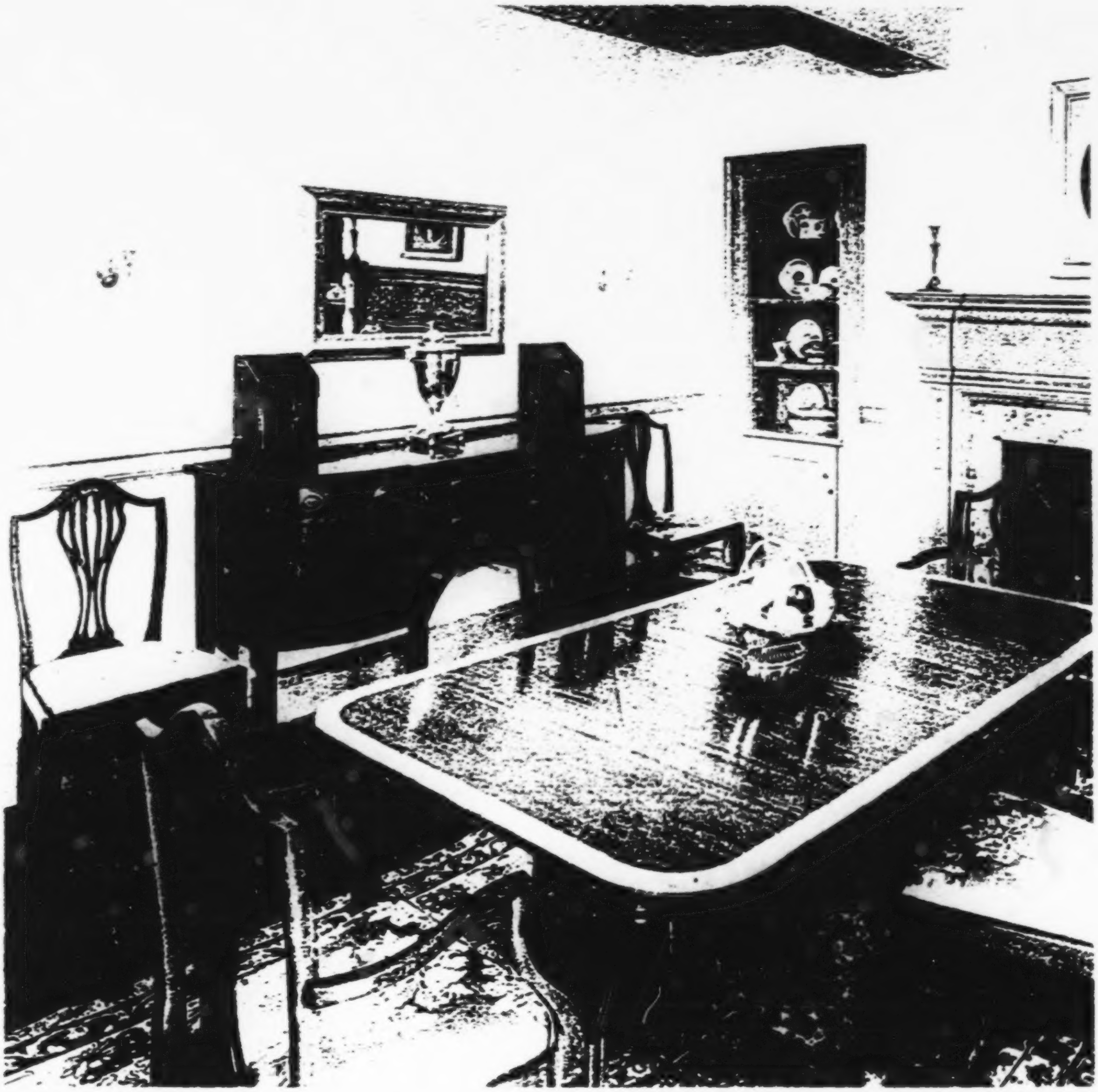

APPENDIX I

MEDIA LOCATOR SHEET

MEDIA LOCATOR SHEET

The CBT disk for American Antique Chairs produced in this thesis/project is available at the office of the graduate program in Master of Science, in Training and Learning Technology, New York Institute of Technology, Old Westbury, N.Y. 11568. It is a three and a half double density disk and requires a CGA display monitor or LCD monitor.

APPENDIX J

CBT COURSEWARE CHECKLIST

CBT COURSEWARE CHECKLIST

Name: ______________________________ Date: ______________

Please rate each of the following statements by writing a number 1 to 3 that best describes your experience.

3 = GOOD **2 = FAIR** **1 = POOR**

	GOOD	**FAIR**	**POOR**
1. Clarity of text.	____	____	____
2. Orientation of text on screens.	____	____	____
3. Clarity of graphics.	____	____	____
4. Orientation of graphics on screens.	____	____	____
5. Choice of colors.	____	____	____
6. Information presented in the software.	____	____	____
7. Feedback from the software.	____	____	____
8. Interaction with the software.	____	____	____

9. How long did it take you to complete this CBT software?

____

10. Please write any other comments you wish about the software.

____

____

____

THANK YOU VERY MUCH.

APPENDIX K

END-OF-COURSE QUESTIONNAIRE

END-OF-COURSE QUESTIONNAIRE

Please rate each of the following aspects by providing a number 1 to 5 that best describes your feelings about the program.

5 = Completely agree

4 = Mostly agree

3 = Agree only somewhat

2 = Mostly disagree

1 = Completely disagree

1. I found the learning activities useful. __
2. I found the learning activities enjoyable. __
3. I found the learning activities interesting. __
4. The level of difficulty was just right. __
5. Length of each section was appropriate. __
6. The CBT delivery was appropriate. __
7. The software operated without problem. __
8. Completing this training has improved my ability to recognize 18th century American antique chair styles. __
9. Ability to recognize 18th century American antique chair styles is beneficial to my profession or hobby. __
10. How can this program be improved?

____

____

____

THANK YOU VERY MUCH.

APPENDIX L

EVALUATION DATA

EVALUATION DATA I:

The CBT Courseware Checklist Data
(n=10)

Question #		Answers	
	3=GOOD	2=FAIR	1=POOR
1.	8	2	0
2.	8	2	0
3.	8	2	0
4.	8	2	0
5.	10	0	0
6.	8	2	0
7.	5	4	1
8.	8	2	0
Total	63	16	1

9. The average time to complete the software: 1 hour 23 minutes.

10. Comments on the CBT software:

    - Easy to learn
    - Enjoyed the graphics
    - Liked the information presentation which relied heavily on graphics and less on words.
    - Help messages were not enough.
    - Feedback should be more elaborate.

EVALUATION DATA II:

The End-of-Course Questionnaire
(n=10)

Question #	Answers 5=SUPER	4=GOOD	3=FAIR	4=POOR	5=V.POOR
1.	3	6	1	0	0
2.	5	4	1	0	0
3.	5	4	1	0	0
4.	4	5	1	0	0
5.	6	4	0	0	0
6.	5	5	0	0	0
7.	0	7	3	0	0
8.	4	5	1	0	0
9.	6	4	0	0	0
Total	38	44	8	0	0

10. Ways to improve this program:

- Give better help messages.
- Program function keys for quick reference.
- Inform learners on which practice session exercises have been completed.
- Rotate the chairs to study from three-dimensional perspective.

BIBLIOGRAPHY

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BOOKS

Alessi, S. and Trollip, S. (1985). *Computer-based instruction: methods and development.* New Jersey: Prentice-Hall.

Anderson, R. (1983). *Selecting and developing media for instruction.* New York: Van Nostrand Reinhold Company.

Bloom, B. (1956). *Taxonomy of educational objectives.* Handbook I: *Cognitive domain.* New York: David McKay Company.

Butler, J. (1985). *Field guide to American antique furniture.* New York: A Roundtable Press Book.

Davidson, M.B. and Stillinger, E. (1985). *American wing at the metropolitan museum of art.* New York: Alfred A. Knopf, Inc.

Dick, W. and Carey, L. (1985). *The systematic design of instruction* (2nd ed.). Glenview, IL: Scott, Foresman and Company.

Dodd, D. and White, Jr., R. *Cognition, mental structures and processes.* Boston: Allyn and Bacon, Inc.

Fairbanks, J. (1981). *American furniture, 1620 to the present.* New York: Richard Mark Publishers.

Gagne, R. (1985). *Principles of instructional design* (4th ed.). New York: Holt, Rinehart and Winston.

Kirkpatrick, D. (1987). Evaluation. In R.L. Craig (Ed.), *Training and development handbook.* Arlington, VA: American Society for Training and Development.

Mager, R. (1984). *Preparing instructional objectives* (revised). Belmont, CA: David S. Lake.

Miller, E. (1966). *American antique furniture, 1.* Baltimore, MD: The Lord Baltimore Press.

Williams, H.L. and Williams, O.K. (1966). *Great houses of America.* New York: G.P. Putnam's Sons.

MAGAZINE ARTICLES

Broad, M. (1982). Management actions to support transfer of training. *Training and Development Journal*, pp. 42-47.

UNPUBLISHED MANUSCRIPTS

Markle, D. (1988). Turning test frames into teaching frames: a strategy. NSPI Convention Talk.